VOCATIONAL EDUCATION

Problems & Prospects

Thimmaiah
Seetharamu
Abdul Aziz
Rayappa

Himalaya Publishing House

ABOUT THE BOOK

Vocational Education: Problems & Prospects is an evaluation study of the problems and prospects of vocational education, and makes policy recommendations on the future programme of vocationalisation. It makes an objective assessment of the shortage categories of vocational skills with a view to projecting the demand for, and the supply of these skills, and covers such vital areas as the cost of vocational education, the attitude of the students to vocational education, and the factors which account for the drop-outs from these courses. It squarely faces the problems of the agencies involved in the programme of vocationalisation, and discusses some of the policy issues involved in the successful operation of this programme.

The book is a unique and authoritative study of the importance and validity of vocational education in the context of the demand for, and the supply of, vocational skills in the rapidly expanding industrial sector in India.

PRICE Rs. 35.00

VOCATIONAL EDUCATION IN KARNATAKA

VOCATIONAL EDUCATION
—Problems & Prospects
(A Case Study of Karnataka State)

G. Thimmaiah
Abdul Aziz
A.S. Seetharamu
P.H. Rayappa

Institute for Social and Economic Change,
Bangalore

S.C.E.R.T., West Bengal
Library
Calcutta
25/3, B. C. Road

Himalaya Publishing House
Ramdoot, Dr. Bhalerao Marg, Girgaon, Bombay-400004

Edition: *1982*

.T., West Bengal
11-7-89
o 4637

371.42
THI

Published by: Mrs. Meena Pandey, Himalaya Publishing House, "Ramdoot", Dr. Bhalerao Marg, Kelewadi, Girgaon, Bombay—400 004.

Printed at : Anand Printing House, 3045, Gali Sushila, Kali Masjid, Delhi—110 006.

FOREWORD

When education on Western lines was introduced in India about a hundred and forty years ago as a result of the famous Macaulay's Minute of 1835, and when it was systematized and expanded on the basis of the epoch-making Wood's Despatch of 1854, its main objective was to train Indians to occupy subordinate positions in Government service to help the British rulers in the administration of the country. Education given in schools was largely academic and general in nature. Later, when the three universities at Calcutta, Bombay and Madras were established in 1857 and the matriculation examination was introduced as a qualifying examination for admission to colleges, high schools became college preparatory schools, and school education became more literary and academic in nature. During the next fifty years, although school education was criticized on the ground of being too literary in character, nothing was done to set matters right. At the beginning of the present century, however, attempts were made to introduce some practical courses in our school curriculum. Sloyd (woodwork) and Drawing were introduced in our high schools, not from a vocational point of view but with a view to giving education a practical bias.

Later, practical courses of a vocational nature were introduced in our senior primary schools, not with a view to training students for a vocation but only with a view to giving their training a vocational bias. These courses included metal work, leather work, tailoring, carpentry, agriculture, sericulture, smithy, etc. The number of schools offering such courses was, however, very small in comparison with the total number of senior primary schools ; and the number of students taking such courses in any school, too, was very small in comparison with the total number of pupils in the school. Most of the students took Hygiene or *Samskrita* which were provided as alternatives to the practical courses.

At the high school stage, a system of optional subjects or electives was introduced in the thirties. Students in the second year of the high school then had to choose one out of four elective groups, *viz.*,

(*a*) Humanities ;

(*b*) Science and Mathematics ;

(*c*) Practical subjects ; and

(*d*) Fine Arts.

The practical subjects included a large number of vocational subjects—Agriculture, Sericulture, Printing, Commerce, Type-writing, Carpentry, Smithy, Electric Wiring, etc. For girls, Domestic Science, Needlework and Embroidery were introduced. Here, again, the courses were intended to give a vocational bias rather than vocational training to the students. But, from experience, it was evident that most of the students, over 90 per cent of them, offered Group A or Group B which had follow-on courses at the college level, while a small percentage offered Group C or Group D, which had no follow-on courses at the college level. Later, when Commerce Colleges were started, the number of students taking Commerce under Group C increased very rapidly. Those who chose subjects in the C or D Group found that the training given to them was incapable of facilitating their direct entry into any vocation.· In some schools, Head Masters had to use their personal influence to induce the required number of pupils to take subjects in Group D so that the particular teacher may not become superfluous.

Such a state of affairs continued till the time of the appointment of the Mudaliar Commission on Secondary Education in 1952. The most important recommendation of the Commission was that diversified courses should be introduced at the secondary level and that multi-purpose high schools should be started. Such multi-purpose schools were established all over the country during the early fifties. The objective of the multi-purpose high schools was to train the pupils in such a way as to make them eligible for College studies or further vocational or technical training or to enter life. Eight groups of electives were suggested, many of which were vocational in nature. The Commission also recommended that a large number of craft courses should be introduced in all the secondary schools for the purpose of making education less literary and more practical and making our boys and girls appreciate the dignity of labour. For the implementation of these recommendations, large sums of money were spent all over the country ; and four Regional Colleges of Education were established to train teachers for multi-purpose high schools. By the time the Regional Colleges of Education were introduced, the multi-purpose school system was showing signs of failure. But, from practical experience, it was evident that these courses were not successful mainly because of the fact that the training imparted in these schools was far too inadequate to give to students any effective vocational or technical competence ; as a matter of fact, such students were unemployable without further training. It may be mentioned here that only one-fourth of the total teaching time was allotted to these vocational courses, the remaining three-fourths being set apart for general education. Another reason for their failure was that no preference was given to these students when they sought admission to Engineering, Medical, Commerce or Agricultural Colleges or other Technical Institutions.

The Education Commission of 1964-66 reviewed the entire situation and recommended that school education should be of 10 years' duration and that it should be general in character without any electives and common to all students. It recommended the introduction of electives at the next stage of education, *viz.*, the pre-university stage. The Commission recommended that about 50 per cent of those who leave high school should be diverted to vocational courses at the pre-university stage. It was also suggested that the duration of these vocational courses need not uniformly be 2 years ; that it may be one year, or two years or three years, depending upon the nature of the course. At the school level, the Commission recommended that about 20 per cent of those who pass Standard VII should be diverted to purely vocational courses, the remaining 80 per cent going to high schools for a general course without any electives. No attempt has, however, been made to implement this recommendation.

The progress of vocationalisation at the pre-university stage was very slow. The Government of India therefore launched a massive centrally-sponsored scheme of vocationalisation in 1977. In Karnataka, 13 colleges in three districts introduced 21 vocational courses, and about 1,000 boys and girls were trained. In 1978, vocational courses were introduced in 45 colleges scattered over 9 districts. The number of courses was increased to 27 and the number of students to about 2,000. Experience has shown that these courses are not very popular. In many colleges, the Principal and the members of the staff had to induce some students to join these courses. There is a feeling that these courses are meant for those who are not fit for the Arts, Science or Commerce courses. Second, most of the courses are either technical or industrial in nature. There are very few agriculture-based courses. Third, the qualification obtained at the end of the 2-year course is not recognized for purposes of employment in Government service since this qualification does not find a place in the Cadre and Recruitment Rules. No preference is given to them at the time of employment. There is a widespread feeling that this scheme will also prove to be as wasteful as the multi-purpose high school scheme of the nineteen fifties.

I personally feel that the problem of vocationalisation of education is an economic problem rather than an educational problem. We cannot create jobs by starting vocational courses. If economic development takes place, more jobs will be available. Vocational courses will then be necessary ; and they will be more popular.

I also feel that we are attempting to achieve socialistic objectives by democratic methods in a democratic set up and that our attempt is not likely to succeed. Even in England, the comprehensive school scheme has not been successful exactly for the same reason. I feel that there must be an element of compulsion with scientifically worked out selection procedures. We must have a massive programme of educational and vocational guidance. Just as we are now restricting admission to medical and engineering colleges on the basis of the performance of students at the PUC examination, so we should select and admit students to the Arts, Science, Commerce and Vocational courses at the Degree level. Our country is not affluent enough to think of College education in Arts, Science or Commerce as a general education and to give everyone the right to receive such education. In my view, primary education should be compulsory for all. Secondary education should be open to all ; but college education should be restricted to only those who are capable of benefiting by it ; and it should be based on the needs of society. In the United Kingdom, admission to Universities is highly restrictive ; and so it is in the USA, although, in the latter country, college education is more freely available in State Colleges. We cannot follow the US practice because we are not an affluent country.

This evaluation study is a welcome contribution to the understanding of the problems and prospects of vocational education at the higher secondary stage.

Institute for Social and
Economic Change,
Bangalore

A. C. DEVE GOWDA

PREFACE

Sri Subbaiah Shetty, former Minister of Education, Government of Karnataka, during his visit to the Institute for Social and Economic Change, Bangalore, requested the faculty to help the State Government in the formulation and implementation of progressive policies in education. Following his request, Professor V.K.R.V. Rao, who was then Chairman of the Board of Governors, constituted a four-member team consisting of G. Thimmaiah, A.S. Seetharamu, Abdul Aziz and P.H. Rayappa to find out the areas in which the Institute might immediately take up studies relating to the programmes and policies of the State Government, particularly in the field of education. The team, after a study of all the educational programmes, came to the conclusion that one of the areas in which it might undertake studies was the vocational education programme. This programme attracted the attention of the team because it was still in the initial stages of experimentation in the State. The team therefore suggested that the Government of Karnataka should be approached for a small grant for the conduct of an *ex post* evaluation of the vocational education programme in the State. The Government of Karnataka readily sanctioned the amount and the originally constituted team conducted the evaluation study. The present monograph is the result of this study.

In this evaluation study, we have examined four aspects of the vocational courses which had been introduced in Karnataka :

(*i*) Assessment of the demand for vocational skills *vis-a-vis* their supply ;

(*ii*) Evaluation of the vocational education experiment in Karnataka ;

(*iii*) Evaluation of problems and prospects ; and

(*iv*) Policy issues.

We are grateful to the Government of Karnataka for giving us an opportunity to conduct this study. We are also grateful to the Principals of the selected colleges, their staff and students who extended their co-operation to us and gave us the required information for this study. We are indebted to E.S. Gurubasappa, former Director of Vocational Education, Government of Karnataka, and Shantharaj, Joint Director, Department of Employment and Training, for sparing their valuable time to discuss the subject with us. We wish to thank Professor A.C. Deve Gowda, who went through the preliminary draft of this monograph, and offered his valuable comments on it. He has also been kind enough to write a foreword to this report. We gratefully record our thanks to the participants of the one-day workshop who discussed this report and made valuable suggestions. We thank B.S. Srikantaiah, former Acting Director of the Institute, and L.S. Venkataramanan, the present Director, who gave us encouragement in conducting the study and the workshop respectively. Before being processed for publication, the report was sent to two eminent experts in the field of education, Malcolm Adisheshaiah and J.P. Naik. They have gone through the report in detail and offered valuable comments. We are grateful to them as well.

In the course of this study, we were assisted by Deepak Grover of the Population Research Centre, Miss M.D. Ushadevi and Mrs. Usha Ramkumar of the Education Unit, Mr. Jaganmohan Reddy and Mr. H.K. Linga Raju of the Economics Unit, and Mr. V. Srinivasulu of the Sociology Unit. We wish to express our sincere thanks to all of them.

Institute for Social and
Economic Change,
Bangalore

AUTHORS

CONTENTS

FOREWORD (*v*)—(*ix*)
PREFACE (*xi*)—(*xii*)
LIST OF TABLES (*xv*)—(*xvi*)
CHAPTER I : Introduction 1—8
CHAPTER II : Demand for Vocational Skills 9—16
CHAPTER III : Evaluation of Vocational Education Experiment 17—30
CHAPTER IV : Vocational Education : Problems and Prospects 31—42
CHAPTER V : Findings and Recommendations 43—48
Appendix I 49—70
Appendix II 71—73
Appendix III 74—75
Appendix IV 76—80
Appendix V 81
Appendix VI 82

LIST OF TABLES

Table *Page No.*

2.1 Current Status of the Passed-out Students Covered in Our Study 14
2.2 Sectoral Outlay for Karnataka (Rs. in crores) 14
2.3 Direct and Indirect Employment Generated per Rs. 1,000 of Investment by Industry : Construction Phase 15
2.4 Direct and Indirect Employment Generated per Rs. 1,000 of Investment by Industry : Maintenance and Operation Phase 16
3.1 Enrollment in Vocational Courses, 1977-78 to 1979-80 18
3.2 Participation of Scheduled Caste Students in Vocational Courses 18
3.3 Enrollment in Vocational Courses in Relation to Enrollment in General PUC Course 19
3.4 Proportion of Scheduled Caste Students in General PUC Courses and Vocational Courses 20
3.5 Demand for Vocational Courses in Terms of Respondes by Principals of Colleges 21
3.6 Criteria for Selection of Students 22
3.7 Criteria Followed for Offering Vocational Courses to Students 23
3.8 Drop-outs from Vocational Courses 24
3.9 Drop-outs by Nature of Courses 25
3.10 Performance of Students in Vocational Courses 25
3.11 Workshop Facilities Available in Colleges Offering Vocational Courses 26
3.12 Equipment Position of Colleges 27
3.13 Staff Position for Vocational Courses 28
3.14 Availability of Part-time Teachers 28
3.15 Nature of Difficulty Faced by Colleges in Getting Part-time Teachers 29

3.16 Attitudes of Students to Vocational Courses 29
3.17 Attitude of College Principals to Vocationalisation of Degree Courses 30

APPENDIX TABLES

Appendix I Employment Situation and Vocational Courses Identified 49
Appendix II List of Vocational Courses Suggested by the Ministry of Education, Government of India 71
Appendix III List of Colleges Offering Vocational Courses 74
Appendix IV Student Enrollment in Vocational Education Courses, 1977-78 76
Appendix V Statement of Expenditure on Vocational Education During 1977-78 and 1978-79 81
Appendix VI Student Enrollment and Employment of Staff in Different Vocational Courses Groups 82

CHAPTER I

Introduction

1.1. Background

Should education be liberal or vocational ? This is an age-old question. It has come up time and again in the educational history of all societies. There have been several cases of past societies which went all out for liberal education, totally disregarding vocational education. One such earliest society was the Greek Society where two kinds of education prevailed : education of "free" men and education of "slaves." The former was referred to and encouraged by Aristotle as "liberal" education, while the latter was referred to as "servile" education. "Servile" education had been accorded an inferior status ; in content and form, it was mechanical, occupation-oriented, and involved manual labour. The institutes of higher learning therefore confined themselves to the organisation of "liberal" education—*i.e.*, education of "free" men, men who were the citizens, had voting rights and held public office. This state of affairs continued till the Industrial Revolution, when "work" was given importance in the curriculum, and there was a rise in the status of the "worker" as a person and as a citizen.[1]

The consequences of this change on orthodox liberal education were profound. Liberal education courses were so restructured as to incorporate vocational subjects within their framework. Since then, the question has been :

"How much of higher education should be liberal or vocational" rather than "whether higher education should be liberal or vocational." The choice has been one of degree rather than of form. Even now, the question of balancing education between the liberal and vocational spheres continues to confront the educational planner. The answer to this question depends to a large extent upon the stage of the overall development of a country. Thus, developing countries like India cannot afford to place continued emphasis on liberal education; they have to vocationalise education as far as possible. Otherwise education would be at cross-purposes with the national goals of development. If past experience is any guide to future trends, a continuing emphasis on liberal education would only swell the number of the unemployed, promote unrest among students in particular and the academic community in general, distort planned strategies of development, and tend to push the system of education towards a state of chaos. It is with this perception that the National Education Commission[2] recommended, as far back as 1966, a policy of progressive vocationalisation of education in India. In particular, the Commission recommended the vocationalisation of higher secondary education. This recommendation was accepted by the Government of India, and the Union Ministry of Education implemented the policy as an integral part of the new 10+2+3 pattern of education. Accordingly, some State Governments implemented the vocationalisation of the "plus two" stage of education for the first time in 1977.

---

[1] John S. Brubacher gives a detailed account of this shift from purely liberal to liberal-cum-vocational education in his *History of the Problems of Education*, McGraw Hill Book Co., New York, 2nd Edition, 1966, pp. 427 to 464.

The avowed objectives of vocationalisation of education are:

(*i*) To train persons for those middle level jobs which may be anticipated in industry and in the service sector;

(*ii*) To train people for self-employment in agriculture, small industries, services such as repairing, etc.;

(*iii*) To offer vocational courses which are neither too narrow nor too specialised; and

(*iv*) To establish close links between education and employment.

---

[2] Government of India, Ministry of Education, *Education and National Development*, New Delhi, 1966.

It is obvious from these objectives that vocational education was intended to be both a terminal and a transitional course. It is terminal in the sense that those students who successfully complete the course and prefer to seek gainful employment may take up suitable jobs or get self-employed. Others who prefer to go in for higher education may pursue general education; for them, the "plus two" course a transitional course.

1.2. Karnataka's Attempt

The Government of Karnataka was among the first to introduce the vocational courses on the pattern suggested by the Union Education Ministry. The first batch of 1,029 students from the three districts of Karnataka, *viz.*, Bangalore, South Kanara and Dharwar (916 boys and 113 girls) was admitted and trained in 13 colleges during the two-year period, 1977-79. A total of 21 vocational courses under agriculture, industry and services were introduced To train the students in these courses, a total of 220 staff members (including part-time and full-time employees and assistants) were appointed. The media of instruction followed were Kannada and English. The duration of the course was two years. The maximum intake of students in any single course was fixed at 25. Out of the 1,029 students, 892 appeared for the final examination at the end of the two-year course in 1979.

In 1978-79, vocational courses were introduced in 45 colleges spread over nine districts of the State. The number of vocational courses offered was also increased to 27. The total enrolment of students stood at 2,148 (1,874 boys and 274 girls) in that year. In 1979-80, vocational courses were introduced in 76 colleges of Karnataka; and the total enrolment stood at 2,726.

To gather the necessary information on the demand for vocational skills in different districts, an attempt was made to prepare district vocational surveys of the State. This was treated as an integral part of the programme of vocational education, though it served as a preparatory stage for assessing the scope and needs of vocational courses in each district. Specifically, these surveys were conducted at the initiative of the Union Ministry of Education with a view to:

(*i*) Identifying the existing resources in the district ;

(*ii*) Identifying the existing institutions which may be potential institutions for the introduction of vocational courses ;

(*iii*) Identifying the vocational skills in demand in the district ; and

(*iv*) Identifying the shortage categories of skills in the district.

All the District Vocational Surveys have been completed and are now available in print. These District Surveys contain information on population size, rural-urban distribution of population, economic characteristics of the population, extent of irrigation, size of land holdings, and cropping pattern in the district, other resources such as forest and minerals, the number and nature of industrial establishments, etc. They also indicate the number of people on the live registers of Employment Exchanges, the shortage of trained personnel, the educational facilities available in the district and, finally, the vocational courses that may be relevant for the district.

After the introduction of vocational courses in the State, an attempt was made to evaluate the vocational education programme. A NCERT Team made an attempt[3] to evaluate the vocational education programme in Karnataka in March 1978. A Follow-up Study[4] was attempted in January 1979. The NCERT team visited all the 13 institutions offering vocational courses in the State, and presented their college/school-wise reports. The Study Team evaluated such facilities as staff, laboratories/workshops, etc., and considered such other aspects as the enthusiasm of the head of the institution, the financial problems, and the availability of employment opportunities for the vocationally trained.

The NCERT evaluations are commendable ; however, they were completed even before the first batch of students finished their courses. Now that one batch has come out, there appears to be a case for an *ex post* evaluation of the courses, particularly in terms of the employment situation and the employability of the students. There is also a need for a special study of the problems of the students who happen to be the focus of attention in the whole scheme of vocationalisation, an aspect which has been fully examined in this study. When the NCERT made its evaluation study, the courses had been confined to the colleges which were located in selected areas of Karnataka. Since then, the scheme of vocationalisation has been extended to all parts of the State. Therefore, it would be interesting to know the response and experiences of the various regions about the vocational education programme.

---

[3] *A Critical Study of Vocationalisation of Education in Karnataka*, New Delhi, March 1978.

[4] NCERT : *Follow-up Study of Vocationalisation of Education in 13 Junior Colleges of Karnataka*, New Delhi, January 1979.

Another significant aspect of this study is its evaluation of vocational courses which have been introduced in terms of the local/regional requirements of skills. This has not been done so far. It may be noted that, apart from weaning the students away from general education, the objective of vocational education is to meet the local skill—requirements by training students in the required vocational skills. In this connection, the question that occurs to one's mind is to what extent this objective is being fulfilled. An answer to this question requires a thorough examination of the matching that is attempted between the courses offered and the skills which are in short supply in the region in question. Such an examination has been attempted in this study.

1.3. Objectives of this Study

The present study is an *ex post* evaluation of the programme of vocational courses implemented in Karnataka. The objectives of the present study are :

(*a*) To evaluate the overall demand for vocational skills in Karnataka State in relation to the vocational courses offered ;

(*b*) To review the programme of vocational education in the State with respect to enrolment trends, selection procedures, resource position, etc.

(*c*) To focus the problems of vocational education and highlight its prospects ; and (*d*) To make policy recommendations on the future programme of vocationalisation.

1.4. Methodology

The vocational education scheme has been introduced only at the +2 level, *i.e.*, at the pre-university level ; and in 45 colleges, this scheme is presently in operation. As the number of colleges offering vocational courses was within manageable limits, it was decided to cover all of them, colleges, some by personal visits and some by mailing schedules by post. Accordingly, we prepared three schedules—two for students and one for Principals. While general information was sought through this schedule from the Principals, 13 colleges were selceted for a more intensive study of the course problems and the problems of the students—both the currently studying and those who had passed their examinations. Copies of these schedules were mailed to the remaining colleges, with a request that the Principals fill out the schedules and mail them back to us.

Interviews were held in the thirteen selected colleges with the Principals and the teachers who were teaching the vocational courses as well as with the students. In this way, we collected information from 18 girls and 118 boys from among the currently studying students, and from 20 girls and 25 boys from among those who had passed out of the vocational institutions. These completed schedules (received from the Principals, the currently students and the passed-out students) form the data base of our analysis in this study.

Separate questionnaires were prepared for the currently studying and the passed-out students. There was no difficulty in canvassing the questionnaire among the former because they were available in the college. In regard to the latter, the Principals had been requested to arrange interviews with them. Where that was not possible, the addresses of some selected candidates were collected, and the questionnaires were mailed to them.

As for the selection of the students, there was some difficulty. It was earlier decided to take a per cent sample of the currently studying students and of those who had passed out of the thirteen colleges and cover them by personal interview. Accordingly, in the colleges covered, every tenth student was selected, using the attendance register for the purpose of canvassing the questionnaire. Whenever the tenth person was not available, his or her immediate next or preceding number was selected. In many places, however, we came up against a problem. As the sample student was selected from each class and from each course, it was difficult to obtain Number 10, or 20, or 30, because, in each course, the maximum number of students was 25. The first two students were easily selected. The third, however, was one of the residual above 20 (if the number was less than 20, one of the residuals above 10 was selected, and so on). In respect of the passed-out students, the procedure referred to here could not be strictly adhered to because of operational difficulties. While the questionnaire was canvassed only among the sample students, a common interview was held with all the students in the classrooms to assess what they generally felt about the courses, their special problems and their future plans.

Apart from the thirteen colleges which were personally visited by the team, information was also received through mailed questionnaires from 18 out of 31 Principals. This gave us 31 completed questionnaires, which have been actually used for analysis in this study.

1.5. Plan of this Study

This evaluation study of the vocationalisation of education in Karnataka has been divided into five chapters.

In the second chapter, an assessment of vocational courses identified by the Union Ministry of Education and the shortage categories of vocational skills listed by the Bureau of Employment and other agencies has been made with a view to gaining an insight into the demand for, and the supply of, vocational skills. It highlights the flaws and the gaps in the programme of vocationalisation.

The third chapter gives an account of the implementation of vocationalisation programme in Karanataka. It covers such aspects as student enrolment in vocational courses, enrolment in relation to the the general pre-university courses, selection of students and choice of courses, performance of vocational students ; the number of drop-outs, the resource position, investment patterns and managerial assistance to colleges ; the cost of vocational education and, finally, the attitudes of the students and Principals to vocational courses.

The problems faced by the various agencies which are involved in the programme of vocationalisation and which have been implementing the programme have been discussed in the fourth chapter. The future prospects of this programme have also been evaluated.

The last chapter presents a summary of the findings of the study, and presents the recommendations made in the workshop and the policy issues emerging out of this study.

CHAPTER II

Demand for Vocational Skills

Before an analysis of the findings relating to the actual implementation of vocational courses is made, it may be useful to evaluate the estimates of the demand for vocational skills in 19 districts of Karnataka. These estimates, based mostly on secondary data,[1] have been made by the Directorate of Vocational Education. In the statements appended to this report (Appendix I), we have presented the number of persons on the Live Registers of Employment Exchange, and classified them according to the level of their education. Against this, the categories of people who are in short supply, as revealed by the Directorate of Employment and Training, are presented here. Along with these, information on the vocational courses identified by the Directorate of Vocational Education on the basis of their District Surveys has also been presented.

It is necessary to mention here that the District Surveys were conducted by the Department of Vocational Education. They were co-ordinated by the Deputy Directors of Vocational Education with the assistance of the Assistant Director in each district. These Surveys were mainly based on secondary data and on the information available from the census reports and other published documents. An attempt to get first-hand information from the employers in the districts met with a poor response. Knowledgeable persons in the area were contacted, and the employment situation was discussed with them. Most of these Surveys present a factual position without attempting

---

1. The sources of secondary data are district census handbooks, district statistical digests and handbooks of the State Bureau of Economics and Statistics, employment exchange data, lead bank surveys, agriculture census, intensive industrial potential survey reports, industrial development potentialities of districts, and the report of the Third All-India Educational Survey. It may be noted that an attempt was made to collect the primary data from industries; but the response was not very encouraging.

to analyse the implications of these data. The first impression one gets from this information is that there are many discrepancies in the two sets of data and that some of these District Surveys have overlooked the shortage categories of skills as revealed by the information supplied by the Employment Exchanges. It is true that the information available from the Employment Exchanges is only partial, in the sense that not all of those who are unemployed really register and that there are persons who continue to be on the live registers even after they have obtained jobs. However, the information relating to the vocational categories of skills may be considered reliable because such information is passed on to the Employment Exchanges by prospective employers who are looking for such specified categories of skills.

It is not so much the discrepancy in the number of shortage categories and the number of vocational skills identified which is a matter of great concern. What really bothers us is the incompatibility of the nature of vocational skills identified and the shortage categories. As an illustration, let us take the case of Bangalore district. There is a long list of trades—of those who are turners, fitters, die-makers, machine operators, electricians and of such other industrial workers who are in short supply. But none of these has been offered as a vocational course. This is quite understandable because these courses are at present offered by the Industrial Training Institute. Obviously, to make vocational education institutions responsible for the formation of such skills would be to duplicate effort, which would be a waste of resources. But what about the categories of metereologists, laboratory technicians, book binders, junior town planners, about whom no courses have been identified ? There are a number of courses—dairying, poultry, farming, advertising and publicity, interior decoration, to mention a few—which do not figure in the list of shortages. Such examples can be multiplied from other districts. However, the point here is that the courses which have been identified are not really consistent with the skills identified in shortage category, and the shortage skill categories do not find a place in the list of the courses identified.

It may be noted, however, that the Department of Vocational Education may have identified the vocational skills in demand in different districts, and it may have done so on the basis of the sources of information other than Employment Exchanges. But there is no justification for underestimation in the case of four districts. The result of such an imbalance is obvious. While trained personnel in shortage skills are not being produced at all, the new skills which are not in demand are produced, creating the paradoxical situation of unemployment among these new categories of skilled workers while a shortage of the earlier specified skills in the labour market persists.

Thus, from the secondary information available, we find that there is a lot of discrepancy between the number and nature of courses identified by the Directorate for training in each district and the number and nature of the skills in which people were in short supply. This raises a question of co-ordination between the Employment Exchanges and the Directorate of Vocational Education. Moreover, if we examine the lists of shortage categories put out by the Employment Exchanges, we find that most of them pertain to the vocationally skilled, with the exception of a few peons and clerks (which may not be as high as the vocationally skilled category). In the case of the courses identified by the department, we find that a large number of general courses are treated as vocational courses. For example, banking, co-operation, accountancy, auditing, pre-school and primary education, taxation, etc., are listed as vocational courses in almost all the districts. It is well known that some of these courses are offered in Commerce Colleges, some others in Economics Departments, and, that pre-school and primary education courses are well established in specialised training institutions. Because of the technical skill involved in all these courses, students need an intensive as well as a broad-based training which cannot be compressed into a two-year vocational course. Therefore one wonders on what grounds these courses were identified as vocational courses. This reinforces our argument that not enough care was taken to identify the courses which are suitable for vocational skills.

Again, it is quite possible that the State Department of Vocational Education was guided by the list of vocational courses suggested by the Ministry of Education, Government of India. (See Appendix II.) It may be observed that this list includes such general courses as co-operation and pre-primary teacher training and primary school teacher training programmes, banking and international trade, accounting and auditing, marketing and salesmanship.

It is possible that the colleges have preferred to offer these courses because they do not involve much botheration for them and because they do not require technically skilled staff, laboratory, huge equipment, etc. They can be taught in class-rooms and practical work can be done outside the college. The college will get a grant and will take (dubious) credit for introducing vocational courses. One wonders how and why the Union Ministry of Education included these courses in the list of vocational courses because there is no explanation for this inclusion from any of their documents.

If we tally the shortage categories as revealed by the Employment Exchange and with the vocational courses as identified by the Directorate, we find very little consistency or agreement. The foregoing observations on the estimation of the demand for technical skills and the identification of vocational courses to meet this demand were reinforced when we analysed our data, collected from selected colleges, bearing on the employment position of the vocationally trained students who have passed out of the Colleges after their two-year courses. It is evident from Table 2.1 that only a few people got employment after they passed their vocational courses. In fact, the number of unemployed is greater than the combined number of those who went for higher studies and got employment. Of the forty-four who passed out of their Colleges and whom we interviewed, only 6 were temporarily employed and as many as 24 were unemployed, while 14 went in for higher education.

These facts indicate that the vocational courses offered and the number of students in each college were not related to the actual demand for the number of the vocationally trained. It is quite possible that the colleges and the Directorate of Vocational Education took into consideration not merely the actual demand for the vocationally trained but also the potential future demand. But even this future demand was not properly estimated, as is evident from the interviews we had with the Principals of these colleges. Most of such estimates are "guestimates" based on circumstantial evidence. Therefore, it is essential that the Directorate of Vocational Education should give some thought to the estimation of the demand for skills in the State ; and they will probably do well if they use the services of the Employment Exchanges which operate in the various district headquarters.

Perhaps a supplementary method of estimating the demand for vocational skills in the future would be to examine the patterns of investment (both private and public) by the Centre, the State Governments and others, which would indicate possible areas of employment generation. Also, one has to consider the employment potential of the plan schemes in order to get an idea of the quantum of employment that is likely to be generated in each sector of the economy before planning the vocational courses. We have presented in Table 2.2 the sectoral outlays for the state of Karnataka during the Sixth Plan period. Tables 2.3 and 2.4 present the employment potential of different plan schemes (both direct and indirect) during their different phases of operation.

From these figures, it is evident that the emphasis is on rural development, minimum needs, power generation, social and community services. One may also come up with some estimates for employment generation in area specific programmes, such as power generation, irrigation, etc. Plan schemes of irrigation, agriculture, and sericulture generate the maximum number of manual employment opportunities, both skilled and unskilled. Therefore, it would be rewarding to explore the possibility of estimating the demand for different skills on the basis of the proposed sectoral outlays and the employment potential of these plan schemes. This method, when supplemented by others, may give us a clearer picture of the demand for vocational skills in different areas.

TABLE 2.1
Current Status of the Passed-out Students Covered in our Study

Sex	Employed				Unemployed	Higher Studies	Total
	Permanent		Temporary				
	Part-time	Full-time	Part-time	Full-time			
Male	—	—	1	2	12	10	25
Female	—	—	—	3	12	4	19
Total	—	—	1	5	24	14	44

TABLE 2.2
Sectoral Outlay for Karnataka (Rs. in crores)

Sl. No.	Sector	Sixth Five-Year Plan 1980-85
1.	Agriculture and Allied Services	366.50 (14.66)
2.	Co-operation	50.00 (2.00)
3.	Water and Power Development, of which :	1149.55 (45.98)
	(*i*) Irrigation and Flood Control	577.15* (23.08)
	(*ii*) Power	572.40 (22 90)
4.	Industry & Minerals	164.00 (6.56)
5.	Transport & Communications	150.00 (6.00)
6.	Social & Community Services	612.00 (24.48)
7.	Economic Services	4.65 (0.19)
8.	General Services	3.30 (0.13)
	Total	2500.00 (100.0)

Notes : * Including irrigation projects pending approval.
Figures in parentheses are the percentage share of the sector in the total.

Source : Planning Department, Government of Karnataka, *Karnataka Draft Sixth Five-Year Plan*, 1980-85, Vol. 1, 1980, p. 92.

TABLE 2.3

Direct and Indirect Employment Generated per Rs. 1,000 of Investment by Industry : Construction Phase

		Employment				
			(Manual Jobs in Male Mandays)			
Sl. No.	*Sector*	*Regular*	*Skilled*	*Semi-skilled*	*Un-skilled*	*Total (in unskilled male mandays)*
1.	Agriculture (8)	41.2	9.5	107.7	235.0	426.4
2.	Irrigation (4)	1.5	1.6	2.2	35.5	41.6
3.	Manufacturing (4)	6.0	11.5	13.7	20.1	75.0
4.	Public Works (5)	3.2	6.9	12.7	88.9	128.5
5.	Power (4)	16.1	8.7	7.9	35.0	72.9
6.	Sericulture (4)	4.6	8.7	1.7	31.5	60.7
7.	Dairy (1)	1.9	0.02	Nil	8.0	8.1
8.	Education (7)	68.5	12.4	11.0	13.5	67.1
9.	Welfare (3)	5.9	5.1	5.1	13.9	36.8

Note : Figures in parentheses refer to the number of schemes covered under each industry group.

Source : Abdul Aziz and Rayappa, P.H., *Estimation of Employment Potential of Some Plan Schemes in Karnataka*, ISEC, 1978 (A Summary Report), p. 42, Table 4 (mimeographed).

TABLE 2.4

Direct and Indirect Employment Generated per Rs. 1,000 of Investment by Industry : Maintenance and Operation Phase

		Employment				
			Manual jobs			
Sl. No.	*Sector*	*Regular*	*Skilled*	*Semi-skilled*	*Un-skilled*	*Total (in unskilled male mandays)*
1.	Agriculture (6)	58.6	30.6	2.9	61.7	158.3
2.	Irrigation (2)	237.3	131.7	321.7	741.9	1618.8
3.	Manufacturing (10)	3.5	3.8	2.7	3.3	18.8
4.	Public Works (3)	58.8	24.2	8.7	55.3	140.9
5.	Power* (1)	43.2	Nil	Nil	172.7	172.7
6.	Sericulture (6)	17.4	94.3	7.3	26.8	320.3
7.	Dairy (3)	24.9	6.8	0.1	21.8	42.3
8.	Education (1)	126.1	27.9	26.2	26.1	149.2
9.	Welfare (4)	1.2	4.6	0.9	0.7	15.9

Notes : * Figures relate only to direct employment.
Figures in parentheses refer to the number of schemes covered under each industry group.

Source : Abdul Aziz, and Rayappa, P.H., *Estimation of Employment Potential of Some Plan Schemes in Karnataka* (A Summary Report), p. 47, ISEC, 1978, Table 6 (mimeographed).

CHAPTER III

Evaluation of Vocational Education Experiment

An attempt has been made in this chapter to evaluate the operational aspects of vocational education in Karnataka. It covers such aspects as :

(*i*) Student enrollment for vcoational courses—course-wise and general picture, enrollment in relation to the general pre-university courses ;

(*ii*) Mode of selection of students ;

(*iii*) Choice of courses ;

(*iv*) Drop-outs ;

(*v*) Performance of students ;

(*vi*) Infrastructure facilities, such as availability of workshop, equipment and staff ;

(*vii*) Attitude of college Principals and students to vocational education ; and

(*viii*) Government grant.

Rural-urban comparisons are also made wherever they appear to be relevant.

3.1. Enrollment Trends

Table 3.1 presents the data about student enrollment in vocational courses in the State.

It is evident from Table 3.1 that the enrollment in vocational courses in Karnataka State in 1978-79 was more than double the 1977-78 figure and that it declined slightly in 1979-80. One of the reasons for this sharp increase in enrollment in the following years is the while 13 colleges from 3 districts offered vocational courses in 1977-78, the number of colleges

TABLE 3.1

Enrollment in Vocational Courses—1977-78 to 1979-80

	1977-78			*1978-79*			*1979-80*		
	Boys	*Girls*	*Total*	*Boys*	*Girls*	*Total*	*Boys*	*Girls*	*Total*
No. enrolled	781	76	857	1,585	231	1,816	1,495	302	1,997

offering these courses increased to 45 in 9 districts in 1978-79. Further, the number of courses offered increased from 21 in 1977-78 to 27 in 1978-79.

It is interesting to note that the proportion of girls taking up vocational courses increased considerably from the base year 1977-78 through the succeeding years, 1978-79 and 1979-80. Even if we consider only the figures for 1978-79 and 1979-80, it is evident that though the number of institutions offering vocational courses was constant during this period, the girls' enrollment went up from 231 to 302. Further, in 1978-79 and 1979-80, a slight decrease in the enrollment of boys is evident.

3.1.1. Scheduled Caste Students in Vocational Courses

Vocational courses have attracted a considerable number of Scheduled Caste students.

TABLE 3.2

Participation of Scheduled Caste Students in Vocational Courses

Enrollment of	*1977-78*	*1978-79*	*1979-80*
Non-Scheduled Caste Students	835	1,717	1,722
Scheduled Caste Students	22	89	75
Total	857	1,806	1,797

It is obvious from Table 3.2 that the ratio of non-Scheduled Caste students to Scheduled Caste students was 38 : 1 in 1977-78. It came down to 19 : 1 in 1978-79 and stood at

23 : 1 in 1979-80. It was found on further analysis that the participation of Scheduled Caste girls was slightly higher over the years than that of Scheduled Caste boys.

It may be seen from Table 3.3 that the proportion of students seeking general pre-university courses in relation to those who go in for vocational courses has decreased. This proportion was 12 : 1 in 1977-78, which dropped to 8 : 1 in 1978-79 and to 7 : 1 in 1979-80. This trend indicates a favourable social response to vocational courses. Though we cannot generalise on the basis of observations for these three years, the data do indicate that the vocational courses are attracting an increasing number of students from the general pre-university courses. One of the objectives of the vocational course experiment, therefore, appears to have met with some degree of success.

TABLE 3.3

Enrollment in Vocational Courses in Relation to Enrollment in General PUC Course

Enrollment for the Year	*1977-78*	*1978-79*	*1979-80*
Two-Year PUC	10,124	14,288	13,183
Vocational Courses	857	1,816	1,797
Ratio of PUC to Vocational Courses	12 : 1	8 : 1	7 : 1

It may be interesting to examine the behaviour of the ratio of Scheduled Caste students to that of others. Table 3.4 presents this information.

It is evident from Table 3.4 that the proportion of Scheduled Caste students to other students in the general pre-university courses has not materially changed over the three-year period. However, during 1979-80, there was a decrease in the number of other students. As a result, the ratio has moved in favour of Scheduled Caste students. It is evident, therefore, that students from the weaker sections of society are increasingly taking up vocational courses.

TABLE 3.4

Proportion of Scheduled Caste Students in General PUC Courses and Vocational Courses

Enrollment for the Year	*1977-78*		*1978-79*		*1979-80*	
	Others	*SC*	*Others*	*SC*	*Others*	*SC*
General Courses	9,517	607	13,458	830	12,270	903
Vocational Courses	835	22	1,717	89	1,722	75
Ratio of Other Students to SC Students						
General PUC Courses	16 : 1		16 : 1		13.6 : 1	
Vocational Courses	38 : 1		19 : 1		23 : 1	

3.2. Mode of Selection

While examining the methods followed by colleges in the selection of students for vocational courses, it is worthwhile to remember that the intake capacity of each college is fixed at 25 per course and that a college may normally offer four courses at a time. With these constraints on enrollment, and given the diversity of the courses which are offered, it is natural to expect a rush of students for some courses and relatively less demand for other courses. The colleges were therefore asked the following question : "Was there any rush of students for vocational courses ?"

Out of 31 colleges that were contacted either personally or by canvassing through mailed schedules, only one college did not respond to the question. Twenty-five colleges admitted that there was a rush for vocational courses. Only 5 colleges reported that there was no rush. It is clear, therefore, that, in general, there is a rush for vocational courses.

It has already been mentioned that there are four major areas in vocational courses, namely, agriculture, engineering, health services and business. Colleges were asked to indicate the relative demand for these courses. Their responses are given in Table 3.5. It may be noted that the total number of colleges which responded exceeds the number of colleges in the sample. There is, however, the possibility that, in some colleges, the demand was for more than one course.

S.C.E.R.T., Library
Calcutta
25/3, B. C. Ro

TABLE 3.5

Demand for Vocational Courses in Terms of Responds by Principals of Colleges

Nature of Course	*Agriculture*	*Engineering*	*Health Services*	*Business*	*No Response*
Demand for Course	2	11	4	11	8

Twenty-five out of 31 colleges reported that there was a demand for vocational courses. Of these 25, 8 colleges did not specify the area of demand. The analysis of the data is therefore confined only to 17 colleges. It is evident from Table 3.5 that courses in engineering and business are much sought after, while courses in agriculture and health services are not in great demand.

A further examination of the data on the demand for vocational courses in terms of urban/non-urban preferences reveals that engineering courses are more sought after in urban areas and business courses in non-urban areas. The courses on building construction technology and electrical wiring, repairs and maintenance are much in demand in urban areas. Also, the offering of these courses requires a better resource position in terms of skilled personnel, raw materials, scope for practical experience and laboratory facilities. On the other hand, the offering of business courses does not warrant so many facilities. As mentioned earlier, the demand for agricultural and health courses is generally not high. But even this limited demand for agricultural courses is greater in non-urban areas. For health courses, however, the demand is higher in urban areas.

As there was a heavy demand for vocational courses, colleges were asked about the selection criteria adopted by them while admitting a student to a vocational course. From their replies, it appears that colleges have followed such criteria as the prospective candidate's family background, his achievement in past examinations, his aptitude for vocational skills, etc. These criteria were employed individually as well as in combination (see Table 3.6 below).

371·42

S.C.E.R.T., West Beng
Date 11·7·89

TABLE 3.6

Criteria for Selection of Students

Criteria	*SSLC Marks*	*Family Background*	*Aptitude Test*	*Other Factors*
Number of Colleges Following a Criterion	19	11	18	8

Note : All the 25 colleges covered here follow certain criteria for selection. But the total number of colleges mentioning the criteria, when added up, exceeds the total number of colleges in the sample. This is so because some colleges follow more than one criteria.

It is clear from Table 3.6 that the marks obtained by a candidate at the secondary school leaving certificate examination are the main selection criterion, followed closely by tests for vocational aptitude. In 19 colleges, the achievement at the SSLC examination was considered. In 18 colleges, aptitude tests were administered. Only 11 colleges reported that they considered the family background in their selection of students for vocational courses. Eight colleges gave certain other considerations, which may be categorised as miscellaneous. Of the colleges which considered the family background of the applicants, 7 are located in non-urban areas.

When colleges consider the family background of applicants, they bear in mind either the parents' occupations in relation to the vocational course for which admission is sought, or their income. However, it is evident that the colleges go more by the parents' occupations than by their income. In other words, the parents' traditional occupations receive greater weightage.

3 3. **Choice of Courses**

Once the students are admitted to vocational courses, they have to be distributed to specific courses. In this regard, it is worth examining the criteria which they have followed to offer specific courses to students.

The perception of local needs for the vocationally trained skilled personnel (by the Principal and staff) and the relative demand by students for certain types of vocational courses emerge as the two major criteria followed by the colleges when they offer a particular course to a student. Another important criterion followed by them while preferring some vocational courses to others is their staff position (see Table 3.7). Whether teaching/training personnel are available in sufficient numbers and with appropriate technical talent to man the courses if they are offered in the college is one such criterion. In fact, colleges rely heavily upon part-time teachers to run their vocational courses.*

TABLE 3.7

Criteria Followed for Offering Vocational Courses to Students

Criterion	*No. of Colleges Following the Criterion*
As per Governments suggestion	8
Your own perception of local needs	15
Management's decision regarding the same	7
Relative demand for the courses from students	16
Availability of technical personnel to man these courses	13

A few colleges have reported that they did not exercise their discretion but went either by the management's decision or by the government's suggestion in offering vocational courses. Most of the colleges, which mentioned that they went by management's decision in offering vocational courses, are located in urban areas.

3.4. Drop outs from Vocational Courses

Though there is a demand for vocational courses, and though selection is based on certain relevant criteria, the fact remains that a small proportion of students drop out of vocational courses. The figures of drop-outs for the years 1977-78 and 1978-79 are presented in Table 3.8.

---

*For details, see Appendix I.

TABLE 3.8

Drop-outs from Vocational Courses

Year	*1977-78*	*1978-79*
Number admitted	857	1,816
Number dropped out	103	142
Percentage of drop-outs	12.0	8.96

From 31 colleges, 12.00 per cent of the enrolled students dropped out in 1977-78, which is the year in which vocational courses were introduced in Karnataka State. In the following year, the percentage of drop-outs declined to 8.96. This is no doubt an improvement over the previous year as far as the retention of the students is concerned. Even so, however it is necessary to conduct a probe into the causes of such drop-outs and arrest their rate before it takes an upward trend. An attempt has been made here to determine whether the nature of the course has anything to do with the drop-out rate.

Table 3.9 indicates that the drop-out rates for the various courses in agriculture, engineering, health service, business and banking appear to have declined in 1978-79. The engineering and health service courses gained in terms of student retention during 1978-79 when compared with the other courses. The overall drop-out rate for all the vocational courses stood at 8.96 in 1978-79. But the drop-out rates in respect of agriculture and business courses exceeded the overall drop-out rate. Of the four vocational course areas, business and banking courses appear to have the lowest retention-ability. It is obvious from these facts that this course, which is more akin to the general education courses, initially attracts students but ultimately loses them ; a fact which indicates that the students themselves have realised the futility of taking these courses so for as their future employment prospects are concerned.

TABLE 3.9
Drop-outs by Nature of Courses

Nature of Courses		*1977-78*	*1978-79*
Agriculture	Number admitted	157	389
	Number dropped out	16	36
	Percentage	10.02	9.30
Engineering	Number admitted	370	788
	Number dropped out	44	45
	Percentage	11.9	5.7
Health Service	Number admitted	126	162
	Number dropped out	15	7
	Percentage	12.00	4.3
Business & Banking	Number admitted	204	477
	Number dropped out	28	54
	Percentage	13.7	11.1

3.5 Performance of Students

Here, we present an account of the performance of students who appeared in the March 1979 examination. As many as 754 students appeared for the two-year vocational course final examination held in March 1979.

TABLE 3.10
Performance of Students in Vocational Courses

Number appeared	754
Number passed	710
Percentage of failures	5·8

Out of these 754, as many as 710 students passed the examination. The percentage of failures works out at 5.8. This is quite low compared to the percentage of failures in the two-year General PUC Courses. It is interesting to observe that out of 710 successful students, only 10 students rejoined the General Courses, which works out at 1.4 per cent of the total. This is quite insignificant. Of those who rejoined, one is a girl student. It is evident therefore that the wastage in vocational education is very low in comparison with the waste in the General PUC course.

3.6. Infrastructure Facilities

The infrastructure facilities for vocational courses consist of staff, availability of workshop/laboratory facilities/library, etc. In most of the colleges covered by the study, a general inadequacy of library facilities was observed because a dependence on books was not considered essential for vocational courses. This is perhaps a misconception. More attention needs to be paid to the identification of reading material that is suitable for vocational courses with a view to ensuring their supply to colleges. If not text books, at least work books should be prepared for each of the vocational courses. The other important infrastructure facility that is necessary for the success of vocational courses is a laboratory/workshop.

TABLE 3.11

Workshop Facilities Available in Colleges Offering Vocational Courses

Colleges having workshops	14
Colleges not having workshops	15
No response	2

It may be observed from Table 3.11 that a number of colleges do not have a workshop of their own to conduct vocational courses. While 14 out of 31 colleges have a workshop of their own, 15 colleges do not have one. It may be noted that the colleges offering courses in banking and business do not need a workshop. Students are sent out for practical work to a local bank or to a commercial establishment for practical training.

3.6.1. Equipment Position

It may be observed from Table 3.12 that the equipment position of colleges offering vocational courses is quite sound.

The estimated cost of equipment that is available with the colleges works out at Rs. 155,521 while the cost of equipment met by the government specifically for running the vocational courses is Rs. 262,824. The ratio of the cost borne by the colleges to that met by the government works out to around 4 : 7. In other words, the colleges bear around 36 per cent of the total equipment cost of vocational education. It is only

TABLE 3.12

Equipment Position of Colleges

Course	*Cost of Equipment (in rupees)*	
	Available with Colleges	*Given by Government*
Agriculture	49,203	60,095
Engineering	102,323	124,329
Health Services	—	32,015
Business and Banking	3,995	46,385
Total	155,521	262,824

for health courses that the entire cost of equipment is borne by the government. The engineering courses appear to account for the major portion of the total expenditure incurred on equipment.

The colleges were asked whether they found it easy to get equipment repaired whenever it went out of order. All the colleges, except five, reported that they found it easy to get it repaired. The colleges which reported that they faced difficulties in getting their equipment repaired were mostly located in non-urban areas. Obviously, the non-availability of repair facilities in such places and their distance from servicing centres are responsible for this difficulty of the five colleges.

3.6.2. Staffing Facilities

A programme of vocational education pre-supposes a large and extensive staff with diverse qualifications and skills to train students in different vocational skills. It is difficult to get all the staff at one place, and it is uneconomical to employ all of them on a full-time and permanent basis. In this context, the colleges were asked to narrate their experiences. Their responses are presented in Table 3.13.

It is clear from Table 3.13 that colleges depend heavily on part-time teachers to run their vocational courses. The ratio of full-time teachers to part-time teachers for vocational

TABLE 3.13

Staff Position for Vocational Courses

Nature of Course	*Agri-culture*	*Engineer-ing*	*Health*	*Banking*	*Total*
Full-time teachers	15	23	5	13	56
Part-time teachers	72	176	33	98	379

courses works out at nearly 1 : 7 ; that is, for each full-time teacher, there are seven part-time teachers. It is only for the agricultural course that the ratio is lower ; which means that there are more full-time teachers than part-time teachers in other courses.

It is likely that the colleges may find it difficult to get teachers for vocational courses on a large scale, particularly those who would be willing to work on a part-time basis. They were therefore asked : "Do you find it difficult to get part-time teachers ?" Their responses are shown in Table 3.14.

TABLE 3.14

Availability of Part-time Teachers

Difficult to get part-time teachers	12
Not difficult to get part-time teachers	17
No response	2
Total	31

Quite a few colleges (12 out of 31) do find it difficult to get teachers for vocational courses. As many as 17 colleges do not find it difficult to get teachers for vocational courses. However, this does not mean that the problem does not exist or that it is not serious.

Twelve colleges, which faced difficulties in getting part-time teachers, have given their reasons for it, which are indicated in Table 3.15.

TABLE 3.15

Nature of Difficulty Faced by Colleges in Getting Part-time Teachers

Nature of Difficulty	*Frequency*
Remuneration is low	7
Time-table does not suit part-time teachers	4
Not available near the college	7

Note : The total frequency of the nature of difficulties exceeds 12 because some colleges have referred to more than one difficulty.

While some difficulties can be overcome, others seem to have no solution. For instance, seven colleges have reported that one of their difficulties in getting part-time teachers is that the honorarium/remuneration paid to them is quite low. Again, four colleges reported that the time-table did not suit the staff working on a part-time basis. These problems can be easily set right. But the difficulty of seven colleges, which report that part-time teachers are not available from nearby places, deserves serious consideration. Neither the Department of Vocational Education nor the colleges can do anything about it once they offer the vocational courses. Getting teachers from long distances may not be practicable. It is, therefore, advisable to start only those courses for which teachers are readily available on a part-time basis. A resource survey by the colleges in regard to personnel for vocational courses is necessary in this regard.

3.7. Attitudes of Students and Colleges to Vocational Education

Colleges were asked their opinion about how serious the students were about their vocational courses. Table 3.16 gives the responses of the colleges to this question.

TABLE 3.16

Attitudes of Students to Vocational Courses

Students take vocational courses seriously	16
Students take vocational courses in a casual way	3
Students of vocational courses behave like students in general courses	12
Total	31

Only a few colleges (three out of thirty-one) have reported that students of vocational courses are rather casual about their courses. All other colleges reported that students are serious about course work or behave like students in general courses. Sixteen out of 31 colleges that students were quite serious about their course work in vocational education. This is an encouraging sign.

3.7.1. Vocationalisation at Degree Level

The principals of selected colleges were asked whether they would welcome the vocationalisation of education at the degree level. Their responses are given in Table 3.17.

TABLE 3.17

Attitude of College Principals to Vocationalisation of Degree Courses

Welcome vocationalisation of education at degree level	13
Do not welcome such vocationalisation	17
No response	1
Total	31

A majority of the Principals were not in favour of vocationalisation at the degree level. They constitute 54.8 per cent of the sample. At the same time, principals of 13 colleges welcomed vocationalisation at the degree level as well. This issue, however, should be further probed before any firm conclusion can be arrived at.

3.8. Government Grants

All the colleges which have introduced vocational courses receive grants from the government through the Department of Vocational Education. These thirty-one colleges covered in this study were asked : "Do you receive the grants in time ?" Only 1 college did not respond to the question. Of those which responded, 28 colleges reported that they received their grants in time ; but a majority of the respondents were of the opinion that the grants received by them were quite inadequate. Two colleges reported that they did not receive their grants in time. The delayed receipt of grant may be due to some chance factors or to usual bureaucratic delays in the Department of Vocational Education and on the part of the Government of Karnataka which releases the grants to the Department of Vocational Education.

CHAPTER IV

Vocational Education : Problems and Prospects

In this chapter, it is proposed to identify the major problems of vocational education in the State of Karnataka and to evaluate the prospects of the continuation and extension of these courses.

4.1. Problem of Selecting Colleges

At present, vocational courses are taught in a limited number of colleges which are, however, spread all over the State. It is not known how and why only these colleges were selected for vocational courses. It appears that the Directorate of Vocational Education did not follow any definite criteria for permitting colleges to start these courses. One gets the feeling that those colleges which showed interest in these courses were permitted to start them. One would, however, expect the Directorate to use a few criteria—such as the need for vocationally trained personnel in the concerned area, the availability of necessary academic infrastructure in the colleges which were expected to offer these courses, etc.—to identify colleges that could offer vocational courses.

It may be that the Directorate did consider these criteria but could not strictly follow them in the initial stages for want of time. The haste in starting these courses unfortunately led to a situation in which the colleges which did not have even basic academic facilities were permitted to offer vocational courses. In particular, we may refer to a college in Bangalore, which had to close down the courses for want of accommodation after running them for one full term. This should be an eye-opener for the Directorate and persuade it to make a careful examination of all the necessary aspects before permitting any college to start vocational courses.

The Principals of the colleges which offer vocational courses reported that they were simultaneously heading high schools and/or colleges as also vocational courses. They were overburdened with excessive administrative work, for which no additional remuneration was paid. While some were of the opinion that they should be given monetary incentives for shouldering the additional responsibilities imposed by vocational courses, others expressed the view that they were not very keen about this but would appreciate the assistance of a co-ordinator to run the courses as also to carry on the day-to-day supervision. This is another aspect which should be carefully considered by the Directorate.

4.2. Problems in Starting Vocational Courses

In the matter of starting specific courses in selected colleges, there is need for evaluating the college in terms of some criteria. Certain courses would be useful and meaningful only when offered in appropriate colleges. The matching of the local demand for specific skills and trained personnel with the available local college facilities appears to us to be *the necessary criterion* for starting a specific course. This calls for not merely the identification of the skills that are in demand in the local area but also for a numerical estimate of the local demand for such skills. To some extent, the colleges which we covered for this study appear to have taken into account the types of skilled personnel who were in demand in the area. For example, in the non-urban areas of Kanakapura and Chamarajanagar, where the sericulture industry is developing on a very large scale, a course in sericulture has been offered. In the urban areas of Bangalore and Mysore, courses for Watch Repairs, Printing Technology, Psychiatry, Secretarial Practice, etc., are offered. However, none of these colleges made any attempt to estimate the demand for such skills in these areas, perhaps because it is beyond the resource capacity and competence of junior colleges to attempt such estimates. Realising this, the Directorate did sponsor District Surveys ; but, as pointed out earlier, these surveys failed to serve the purpose for which they were conducted.

In the circumstances, the college Principals who had nothing else to fall back upon followed two very crude methods of ascertaining the extent to which a particular skill was in demand. One is what may be called the rule-of-thumb method and the other is the trial-and-error method. Under the former, the Principal and his colleagues would look around to discover the type of economic activity that was going on in the local area. Based on their assessment of the situation, they would select appropriate courses to be by them. For instance, in the Karnakapura College, we were told that a guiding factor in the selection of courses was the extent of the growth of the cocoon market, which required not only cocoon rearers but also cocoon examiners. Similarly, the Principal of the Marimallappa College, Mysore, indicated that he was guided by the growth of the printing industry in the city when he decided to introduce the Printing Technology course. The Principal of the Tagore Memorial Junior College, Raichur, reported that the starting of the Thermal Power Plant and the resultant growth of ancilliary industries in the district gave him some rough idea of the demand for persons trained in Cost Accounts, etc. Accordingly, he introduced the appropriate courses. Under the trial-and-error method, the procedure followed was to announce a course on the basis of a hunch ; and then the response from students was assessed. If the response was not encouraging, that particular course would be dropped.

Obviously, these methods indicate that a crude procedure was adopted for the estimation of the demand for vocational skills. But, in the absence of required statistical data, the Principals were forced to follow these crude methods. The District Surveys sponsored by the Directorate, which are now available in print, do not go beyond this kind of "guestimates." In any case, there can be no two opinions on the point that any future expansion of vocational courses should be based on reliable estimates of the demand for vocational skills. The Directorate of Vocational Education, in collaboration with the District Employment Exchanges, may at least take up the responsibility for identifying skill shortages in the areas in question if not for undertaking a sophisticated estimate of demand for these skills.

4.3. Problems of Infrastructure

The successful teaching of a vocational course requires the necessary infrastructure in an appropriate form and on an appropriate scale. In this connection, we have already examined the types of infrastructure that are required and the extent to which they are available in the colleges covered by this study. It may be recalled that one such infrastructure is the teaching staff itself. Under the present arrangements, separate teaching staff is recruited for these courses ; but the recruitment is made on an *ad hoc* basis. Actually, there are two categories of teachers : full-time teachers and part-time teachers. The latter are mostly locally available professionals who have practical knowledge and are basically self-employed technicians. The former are fresh graduates from the Universities in engineering and agricultural sciences. Many colleges find it difficult to get part-time teachers, particularly in non-urban areas, because of the non-availability of technically qualified personnel. It was reported by one college that it was a long time before a Bank Manager could be persuaded, to come and deliver lectures because he had to obtain the permission of his superiors for the purpose. This snag is found to be almost universal, particularly about the employed persons who may be regarded as appropriate resource personnel for vocational courses. A circular from the Government to all the public and private institutions, requesting them to encourage their employees to take up part-time teaching of vocational courses whenever they are approached, may go a long way in solving this problem.

As far as full time teachers are concerned, there is practically no such problem. However, one difficulty that needs to be recognised is that they are mostly fresh post-graduates from Universities and that, therefore, they lack the experience as well as practical orientation which are required for teaching vocational courses. This point was very emphatically brought to our notice by a college Principal, who also suggested that there should be orientation courses in practical work for new teachers. But if the colleges want to go in for trained and experienced teachers, such teachers would be hard to come by because, those full-time trained teachers would be concerned about problems of job security and job satisfaction.

At present, teachers are recruited on an *ad hoc* basis (for one year) and are paid a consolidated salary. They are not offered permanent jobs because the courses to which they are assigned are supposed to be temporary. It was brought to our notice that a course is offered by a college on the basis of the local demand for a particular skill at a particular point of time. When a sufficient number of trained students in a given skill come out of the college, and when the local requirement of that skill is fully met, the college discontinues the course ; this is what actually happened in at least one college. Consequently, the services of those teachers who are recruited for the course may have to be terminated. In some colleges, it was reported that there was a long delay in sanctioning and releasing grants. Besides, one of the colleges reported that the sanction/approval of the Directorate for the appointment of new staff was characterised by bureaucratic delays and erratic procedures. While such administrative delays may possibly be taken care of, what is difficult to tackle is the problem of the non-permanency of the teaching jobs.

There are also problems relating to laboratories, workshops, buildings, equipment, land, all of which are required for the practical training of students. Some colleges have their own laboratories; but in some, which do not have the necessary equipment, students are expected to go to other colleges where such equipment is available. For instance, we observed that the MGM College at Udupi offers courses in building construction technology, electrical wiring and repairs, and X-ray technology. Students of this college go to the Manipal Institute of Technology for practical classes for the first two courses referred to above and to the Kasturba Medical College for the third course. Similarly, students of a Bangalore-based college where Psychiatry is offered as a course, are expected to go to the Mental Health Institute for practical training. It was reported by some colleges that the Directorate would give grants for the purchase of laboratory/workshop equipment but no funds would be provided for the purchase of cupboards to house the equipment to ensure that it is kept in good condition for future use. Again, it has been pointed out that wherever laboratories and workshops are installed, laboratory assistants/mechanics are required to "work with the students" to make them learn. But there seems to be no provision of financial assistance for the appointment of such assistants/ mechanics. The teacher is, therefore, either overworking or students are not given adequate training in practical work. Cases were also reported of students who had to go to the work places of part-time teachers even for theory classes. It was also brought to our notice that some courses required field visits by students, which had to be undertaken at their own cost or at nominal assistance from colleges. All these have added to the problems of students, and they often complain about these problems. In colleges which have started courses in sericulture, the requirement is irrigated land. The colleges in Kanakapura and Chamarajanagar do have land, but the latter does not have irrigation facilities.

All these points to the need for the creation of the required infrastructure. It is true that a provision of adequate infrastructure would necessitate higher expenditure, a grant for which may not be forthcoming from the Government of India. In these circumstances, colleges are forced to depend on an infrastructure which is not under their own control. However, the Directorate may, at the same time, make out a case for higher allotments for at least those courses which are expensive in terms of infrastructure, and efforts should be made to obtain bigger grants from the Government of India.

As courses have started recently, no standard text books to meet the requirements of the students have been prepared so far. Teachers and students are therefore obliged to consult texts prepared by foreign authors, which may not be suited to our conditions. Of course, we are aware of the view that vocational courses should depend more on practical work than on text books if they are not to degenerate into general courses. However, some specific vocational courses presently introduced (whether justifiable or not) by their very nature require some standard books. These courses are Pre-primary Education, Accountancy, Banking, Secretarial Practice, etc. Moreover, wherever these courses are offered through the Kannada medium, the problem is compounded by the total non-availability of text books. The Kannada Studies Institutes of the Universities are commissioning the writing of textbooks in Kannada and have instituted prizes for good text books. The Directorate may establish a liaison with these Institutes and have the necessary text books prepared by the experts in these areas.

Complaints have been heard about the formulation of the syllabi. It has been contended that the syllabi are often a bit too intensive and extensive for courses like these. Besides, since the syllabi are vague (they cover very broad topics), teachers do not know what exactly is to be taught in the classes. The syllabi are reported to have been framed at Bangalore in consultation with the subject experts drawn from the institutions in and around Bangalore. This may have been necessary to save money and time in the initial period. However, there is no justification for continuing this practice. A suggestion had been made by the teaching staff that, in order that vagueness may be avoided, the syllabi may be formulated by those who are teaching the courses and those whose knowledge of the standards of students and the requirements of the employers is relatively better. It was also brought to our notice that, in some places, owing to the absence of co-ordination in the framing of syllabi, duplication and overlapping often creep in. In particular, our attention was drawn to this problem in connection with the syllabus which was framed for the course in marketing and salesmanship.

It is obvious that the hundreds of teachers engaged in teaching vocational courses cannot all be involved in this exercise every year. However, by rotation and by providing for regional representation, the experience of teachers may be harnessed to improve the syllabi. While doing so, care should be taken to ensure that no vested interests develop on a permanent basis.

It has also been pointed out that there is an absence of a proper balancing of theory and practicals. An unbalanced syllabus in favour of more practicals may be justified for vocational courses. It was brought to our notice by the Principal of a college in Bangalore that the existing provision of one hour of practicals per week per paper was far too inadequate. It is, however, not known whether the syllabus itself assigns such a low importance to practicals. This issue should engage the immediate attention of the Directorate.

4.4. Problem of Selecting Students

Generally speaking, students themselves are expected to take up vocational courses in response to the general publicity given to them. But vocational courses are new and terminal in nature. Students are not very certain about their future prospects after the completion of the courses. As a result, Principals and teachers are called upon to make special efforts to motivate students to take up these courses. In this connection, reference may be made to what may be called the residual method. Under this method, the Principal and the teachers suggest to those students who fail to get seats in the general courses to take up vocational courses. In such a case, the quality of students opting for vocational courses is not likely to be satisfactory.

However, there are some instances of Principals making trips to high schools and motivating good students to take up these courses. But by and large, it has been generally agreed that the students who are attracted to these courses are of low quality ; that is, only those who, having scored very low marks at matriculation and who could not get admission to general PUC courses, desired to join the vocational courses. A problem which arises on account of this fact is that not merely is the training of such students an uphill task, but disciplining them becomes somewhat difficult. Some Principals have also stated that the general indiscipline among the students of vocational courses has had a harmful effect on students who have offered general courses. This point is relevant in the context of the occasional blame grouse about the futility of general courses which are alleged to have encouraged indiscipline among students. From what we have observed, the problem of student indiscipline is present even in vocational courses ; it is be "course-neutral."

Some Principals have reported that they encountered some difficulty in getting students for some specific vocational courses. One of the factors which discourages students from going in for vocational courses is the failure of those who have successfully completed the course to obtain suitable employment. Parents are not willing to send their daughters for a course in nursing. We personally feel that it is not fair to force or even strongly "motivate" students to go in for vocational courses they have practically no choice. We should remember that these courses are terminal in nature and do not provide for higher education. The desire for higher education is natural, and one cannot stop persons from going in for it on the ground of their unemployability after the completion of their courses. Therefore, the selection of a particular course should be the choice of the students themseves. To help them to make such a choice, they should first be made aware of all the implications involved in choosing a particular course. If, in this process, substandard students are attracted to the courses, there will be no cause for regret. One cannot expect brilliant students to take up these courses and get lost in the employment market at a very young age.

4.5. The Social Polarisation Problem

Most of the students who are attracted to these courses are those belonging to backward communities and castes and hailing from rural areas, where their parents are engaged in agriculture and allied occupations. In other words, students from relatively poorer sections of society predominate in vocational courses (because they are interested in quick gainful employment). Though we have not been able to collect data on the family income of the students, we have gathered information on their family background, which can broadly represent the respective income classes. To the extent that these courses train them for gainful jobs in a short period, it is a welcome feature. But, in the long-run, they are denied access to high-income positions because of the limited prospects of the vocations which they take up after the completion of their training. They will therefore always remain in the lower and middle income groups of the population. Moreover, vocational courses prepare students to become skilled workers and not bosses. This is not so in the case of general education, which has become a channel of social and economic mobility.

4.6. Problems of Students

The problems of students may be classified under two headings :

(*i*) Training problems ; and

(*ii*) Post-training problems.

The training problems, as suggested by the students themselves, are many. They complain about lack of text books, vague syllabi, difficulties in regard to practical training, inadequate laboratory and workshop facilities, etc. Apart from making suggestions for improving these, the students demand that they should be offered stipends and that they should be given some financial and other assistance whenever they make field visits. This demand originates from their awareness of the practice that prevails in such technical institutes as the Industrial Training Institutes which offer stipends to students. They also refer to the difficulties which they encounter when they visit such establishments as banks and factories for practical training. Their complaint is that the personnel in those establishments do not take interest in training them ; and even who they do so, they do not show all the necessary documents; instead, they quote examples from their own failures to make them learn from the lessons of experience. This boils down to the question of motivating teachers to impart the knowledge they possess. How and who should take up this responsibility is a question that should be closely examined. The demand for stipends cannot be justified in the context of the financial constraints under which vocational training courses are conducted. What, however, should be possible is some assistance to them during field visits.

The post-training problems boil down to :

(*i*) Problems connected with job opportunities ; and

(*ii*) Problems connected with further studies.

Vocational courses are devised as a means of preparing students straightaway for jobs, and self-employment jobs at that. But our interviews with the students bring out certain facts. All of them are not willing and/or capable of taking up self-employment. Moreover, some capital is required for self-employment. Since most of these students come from rural and poor families it is difficult for them to mobilise the required capital. The nationalised/scheduled banks have not recognised the vocationally-trained students as *technical entrepreneurs* for purposes of advancing loans under the self-employment schemes. This is equally true of the Karnataka State Finance Corporation and the Karnataka State Industrial Development Corporation. It is reported that they have received no directive from the Government to advance loans to vocationally trained persons for purposes of self-employment. If banks offer soft-term loans to them, they might be able to become self-employed. In this connection, some special difficulties of girl students were brought to our notice. It is claimed that girls cannot become self-employed for simple reason that anti-social elements would pose as potential customers and harass them.

Most of the students would like to take up wage or salary employment. As a matter of fact, there is a feeling among the students that the moment they complete the course they would be given jobs. This feeling was perhaps promoted at two levels :

(*i*) The Directorate had, at some stage, indicated that it would request the Karnataka Public Services Commission to alter its recruitment rules in such a way that those who had offered vocational courses would be given preference in recruitment. We are given to understand that the cadre and recruitment rules have been amended to recognise vocational courses for certain jobs. But no preference seems to have been given for these courses.

(*ii*) Some Principals, in their enthusiasm to enrol students in the vocational courses, inadvertently assured them that jobs would be available for those who completed their courses. As a matter of fact, in a college in Bangalore, it seems that students were totally under the impression that the Principal would find jobs for them after they completed their courses.

Quite a large number of students, realising that not many job opportunities are available for them, go in for higher education. Successful students have been turned down even for temporary jobs/piece-work by contractors and employers, both in the public and private sectors. They are told that their courses cannot be recognised because they have received no government directive to that effect. As a result, some of those who have successfully completed their courses are constrained to pursue graduate studies. Recognising the aspirations of such students, the Bangalore University has permitted them to join the Arts courses. The University of Mysore took similar though delayed decision to re-admit students to degree courses. As a result, only the batch of students in the following year batch could benefit it from this decision because it was taken too late to benefit those who had successfully completed their vocational PUC in 1979. But even where students are allowed to go in for Arts courses, difficulties are experienced by them because they realise that their technical training has been a waste of time, money and energy. Moreover, a student who has undergone training in X-Rays or printing technology, or health engineering, may find it meaningless to study the humanities and the social sciences. Therefore, it has been urged that the students should be allowed to take up relevant higher courses ; for example, a secretarial practice student may take up Commerce, an X-Ray student may take up Radiology, a sericulture student may take a course in one of the agricultural sciences, and so on. It is in this area that the Vice-Chancellors of the six Universities in the State should be called upon to play a very constructive role in the years to come.

CHAPTER V

Findings and Recommendations

The vocational education programme was introduced in Karnataka in the 1977-78 academic year at the + 2 stage. This State was among the first in the country to introduce vocational education on the pattern suggested by the Union Ministry of Education. This experiment has by now gone on for almost three years. Since it is still in its very early stages, it is only appropriate to identify the problems and highlight the prospects.

To begin with, in this study, we have tried to match the demand for vocational skills with the supply of the vocationally trained. The courses offered for vocational education are not consistent with the skills identified in shortage category, and the shortage skill categories do not find a place in the list of the courses which have been identified. While trained personnel in the shortage skills are not being produced at all, skills which are not in demand are being produced, creating the paradoxical situation of unemployment among these categories of skilled workers. Meanwhile, the shortage among earlier specified skills in the labour market persists. In the case of courses identified by the Department of Vocational Education, we find that a large number of general courses are treated as vocational courses. Not enough care seems to have been taken to identify the courses which are suitable for vocational skills. The list of courses provided by the Ministry of Education offers no explanation for the selection of those courses. In order to estimate the demand for vocational courses in the future, one may have to examine the pattern of plan investment and the employment potential of the plan schemes.

Since the inception of the programme in the State, the number of colleges offering vocational courses, the number of courses offered, and the number of students enrolled in these courses have all increased. On the whole, the response to the vocational education programme in the State appears to have been favourable. The rush for these courses was mainly in the areas of engineering and business, while courses in agriculture and health did not evoke much response. Students have been selected mainly on the basis of their performance at the matriculation examination and the aptitude tests conducted by the colleges at the time of their admission. The perception of local needs as assessed by college Principals and their staff and the relative demand by students emerge as two important criteria in the offering of a particular course. Infrastructural facilities such as staff, reading material, libraries and laboratories were generally found to be inadequate.

The main problems in implementing the programme arise out of the location of selected colleges, the staff position, the infrastructure facilities, the courses offered, and the employment possibilities after the completion of the training. The matching of the local demand for specific skills and available trained teaching personnel with the local colleges appears to be a necessary condition for starting vocational courses. The facilities reguired for them are the academic and physical infrastructural facilities. The syllabi should be formulated by those who are teaching the courses and those who are knowledgeable about the standards of the students and the requirements of the employers. Duplication and overlapping should be avoided as far as possible. As far as the selection of the courses is concerned, the choice should be left to the students, who should be made aware of all the implications involved in choosing a particular course. The problems of students are at two levels, *viz.*, training and employment and higher education.

In the light of these findings, the following issues important emerge from the point of view of policy :

(*i*) The future of the vocational education programme in the State ;

(*ii*) Preparations for the successful implementation of the programme ;
(*iii*) The role of the Department of Vocational Education ;
(*iv*) Employment prospects for the vocationally trained students ; and
(*v*) Financial implications.

An earlier draft of the study was circulated among a few selected educationists, administrators, researchers, employers and others. At a workshop held later, the participants in a day-long session deliberated at length on several aspects of the vocational education programme in the State of Karnataka. The list of participants is appended at the end. In the following paragraphs, we present a summary of the suggestions and recommendations that emerged on each of the policy items listed above.

5.1. Future of Vocational Education in Karnataka

The Principals of several colleges offering vocational courses were initially cautious and expressed certain reservations about the expansion of the programme of vocational education. One of the arguments for such a cautious approach was that until we consolidate the present position, there may not be any need for further expansion of the programme. It was felt that there was a need for strengthening the local infrastructure before embarking on further expansion. One of the prime objectives of the vocational education programme has been to divert a section of the students into courses leading to skilled employment, and thereby reduce the proportion of the educated unemployed. But our limited experience of the programme reveals that the present consequences of vocational education are very dangerous because they lead not only to an increase in the number of the educated unemployed but also to the unemployment of the educated and trained personnel. Unless placement measures and job opportunities for the vocationally trained are properly formulated and implemented, it may not be profitable to consider the expansion of the programme. However, it was pointed out that there was a demand for vocational courses from colleges in the areas which have not been covered so far. The consensus on this point was that the expansion of the vocational education programme should be undertaken after establishing the need for skills in the areas to be covered, and after taking into consideration the availability of infrastructure facilities. It was also felt that there might not be any need for an intensive re-survey of the area because the basic information needed for the purpose was already available.

It was stressed that the expansion of the vocational education programme should be both vertical and horizontal. With regard to such basic skills as carpentry, masonary, etc., the courses can start at the secondary stage itself, *i.e.*, in the eighth, ninth and tenth classes. At the college level, the expansion should be undertaken in those vocations where higher training is necessary and for the benefit of those students who would like to pursue higher studies at the degree level for the selected vocations. It was mentioned that some Universities had already taken steps for this purpose. The need for organising a massive vocational guidance programme at the secondary level was also stressed. So was the need for restructuring the courses and for undertaking remedial measures wherever necessary. It was also pointed out that it would be worthwhile to delink degrees (general education) from jobs with a view to ensuring the success of the programme.

5.2. Preparations for Successful Programme Implementation

It was the opinion of the group that, for the success of the vocational education programme, enthusiasm, co-ordination and co-operation were essential at several levels. The Department of Vocational Education, the college administrators and principals and the teaching staff have to strive collectively for its success. It was essential to examine the need for establishing the demand for skills, the availability of such infrastructure facilities as workshops, laboratories and libraries, of teachers with necessary skills and aptitude, and facilities for practical training. The importance of involving people from such institutions as banks, industries, health and other areas was underlined. The preparation of teaching materials, work exercises and guide books would be more profitable than that of the traditional text books. The NCERT should come forward to undertake the preparation of teaching materials for vocational classes in regional languages. Industrial establishments should be encouraged to start their own courses, and if such courses already exist, they should permit the Department of Vocational Educations to use these facilities. Colleges should be given permission to start vocational courses only after it has been ascertained that they have the required infrastructure facilities. In-service training programmes for teachers of vocational courses should be arranged.

5.3. Role of the Department of Vocational Education

It was recognised that a great responsibility rests on the Department of Vocational Education in successfully implementing the Vocational Education Programme. The Department has to co-ordinate, supervise, monitor and evaluate the programme in a systematic manner. It was important to undertake a wide publicity programme by way of printing brochures, writing to all Heads of Departments—both public and private—and seeking their co-operation. These bodies (both public and private) should be notified and approached for the recognition of vocational courses. The group expressed the need for appointing an Information and Public Relations Officer in the Department of Vocational Education who would be solely responsible for publicity and co-ordination.

5.4. Employment Opportunities for Vocationally Trained

During the deliberations at the workshop level, a theme which frequently came up was that of the employability of the vocationally trained candidates. It was pointed out that unless immediate efforts were made to step up the employment opportunities for the vocationally trained students, the programme might not succeed in meeting one of its avowed objectives, *viz.*, to establish close links between education and employment. In this connection, it was pointed out that, at the time of recruitment, preferential treatment should be given to the students trained in different vocations. The Government of Karnataka should be requested to issue a directive to all Heads of Departments to recognise these courses. Similar circulars may be sent to private establishments as well. The Government's recruitment rules may have to be modified to include vocational qualifications for certain jobs. Career guidance for the vocationally trained was found to be inadequate, and this aspect should be closely examined. It was recommended that philanthropists should be requested to establish vocational centres in the State in order to develop innovative skills in different fields. On-the-job training programmes in Government Departments in the areas covered by vocational education should be avoided.

5.5. Financial Implications

One of the suggestions for a successful implementation of the vocational education programme was that the Directorate of Vocational Education should be strengthened with additional personnel. Financial assistance to the institutions offering vocational courses should also be increased in order to build up infrastructure facilities. Part-time teachers should be offered better financial incentives. The Principals of colleges felt that since they were over-burdened with work, they should be provided with some administrative assistance. Students should be given assistance in the form of scholarships, loans and financial assistance at the time of field visits. Keeping these recommendations in view, it was felt that the annual budget of the Department of Education in Karnataka should be increased, so that a bigger amount might be set apart for the vocational education programme from the next financial year.

APPENDIX I

Employment Situation and Vocational Courses Identified

District : *Bangalore*

No. of Persons on Live Registers of Employment Exchanges					*Shortage Categories*	*Vocational Courses Identified*
Illiterates	*Matriculates*	*Graduates*	*Others*	*Total*		
1	2	3	4	5	6	7
Not available (N A)					(1) Turner	(1) Dairying and Dairy Products
					(2) Miller-Mill-Wright Mechanic	(2) Poultry Farming
					(3) Sheet Metal Worker	(3) Fruit & Vegetable Growing
					(4) Fitter	(4) Farm Animal Technology
					(5) Grinder, Gear Grinder	(5) Animal Feed Production and Marketing
					(6) Matereologist	(6) Office Management and Secretarial Practice

1	2	3	4	5	6	7
					(7) Maintenance Mechanic	(7) Personal Secretary-cum-Receptionist
					(8) Moulder	(8) Marketing & Salesmanship
					(9) Pattern Maker	(9) Medical Representative
					(10) Mettur Coupola/Furnace Operator	(10) Salesmanship
					(11) Welder	(11) Advertising and Publicity Service
					(12) Gas Cutter	(12) International Trade
					(13) Die-Maker	(13) Travel Agency
					(14) Die Casting Operator	(14) Tourism (Tourist Guide)
					(15) Carpenter	(15) Furniture Design and Manufacturing
					(16) English Stenographer	(16) Metal Coating and Painting
					(17) Nurse	(17) Plastic Moulding
					(18) Laboratory Technician	(18) Leather Goods Manufacture
					(19) Coil Winder for Motors	(19) Interior Decoration and Design
					(20) Centreless Grinding Setter/Operator	(20) Dental Mechanic and Hygienist
					(21) Maintenance Electrician	(21) Medical Record Technician
					(22) Draughtsmen (Mechanical)	(22) Data Key-Punching Processes
					(23) Accountant	(23) Computer Programming
					(24) Pump Mechanic	(24) Legal Assistant
					(25) Compositor	(25) Industrial Instrument Servicing and Maintenance

1	2	3	4	5	6	7
					(26) Printing Machine Operator	(26) Laboratory Instrument Servicing and Maintenance
					(27) Book Binder	(27) Beautician
					(28) Salesman/Salesgirl	
					(29) Spray Painter	
					(30) Laboratory/Technician/ Assistant (Oil Technology)	
					(31) Architectural Asst. Designer	
					(32) Hosiery Knitter	
					(33) Process Operator for Offset Printing	
					(34) Monocaster	
					(35) Plate-Matter-cum-Darkroom Operator	
					(36) X-Ray Technician	
					(37) Radiographer	
					(38) Junior Town Planner	
					(39) Travel Agency and Tourism—International Ticketing, Hotel Reservation, Transport, Tourist Guide	

1	2	3	4	5	6	7
				District : Bidar		
—	4,963	709	—	5,672	(1) Senior Stenographer (2) Tool fitter (3) Typist (4) Overseer (Civil) (5) Peons (6) Kannada Typist (7) English Typist (8) Ward Boys (9) Clerks (10) Jail Wards (11) Tractor Drivers	List of 40 courses as per recommendations
				District : Bijapur		
—	8,358	2,192	—	10,550	(N A)	(1) Dairying (2) Clothing (3) Embroidery (4) Electrical Wiring and Servicing (5) Textile Technicians (6) Paramedical Courses (7) Agriculture-oriented Courses (8) Sericulture

1	2	3	4	5	6	7
—	3,249	994	—	4,243	(1) Senior Stenographer (2) Typist (3) Tool Fitter (4) Overseer (Civil) (5) Peons (6) Kannada Typist (7) English Typist (8) Ward Boys (9) Clerks (10) Jail Wards (11) Tractor Drivers	(N A)
				District : *Belgaum*		
—	13,276	3,606	—	16,882	(1) Agriculture, Forestry & Fishing (2) Mining & Quarrying (3) Electricity, Gas and Water Works (4) Construction (5) Wholesale & Retail Trade & Restaurants & Hotels Management (6) Financing, Insurance, Real Estate & Business Services	(1) Building Construction Technology (2) Servicing Technology (3) Electrical Wiring and Servicing of Electrical Appliances (4) Poultry Science (5) Dairying (6) Sericulture

1	2	3	4	5	6	7
					(7) Transport/Storage and Communication	(7) Co-operation
					(8) Community, Social and Personal Services	(8) Pesticides, Fertilizers and Medicines
						(9) Health Courses
						(10) Laboratory Technician
						(11) X-Ray Technician
						(12) Medical Record Technician
						(13) Multi-purpose Basic Health Workers
						(14) Materials Management Technology
						(15) Accountancy & Auditing
						(16) Accountancy & Costing
						(17) Tobacco Technology
						(18) Oil Technology
						(19) Textile Technology
						(20) Leather Technology
						(21) Mineral Technology
						(22) Forestry & Wood Products
						(23) Printing & Book Binding
						(24) Tailoring & Embroidery & Karnataka Kasuthi
						(25) Plantation Crops & Management
						(26) Scientific Agriculture

1	2	3	4	5	6	7
					District : Chikmagalur	
—	3,008	788	—	3,796	(1) Auxiliary Nurse (2) Midwife (3) Radio Engineer (4) Teleprinters (5) Shot Blast (6) Mechanic & Operators (7) Lab Technicians (8) Shovel Operators (9) Crane Operators (10) Pump Mechanic and Operators	(1) Agriculture (2) Horticulture (3) Cultivation of Plantation Crops (4) Dairying (5) Fisheries (6) Forestry & Wood Products (7) Sericulture (8) Agricultural Economics and Farm Management (9) Poultry (10) Sericulture (11) Manufacture of Cattle Feed & Poultry Feed (12) Fruit Preservation & Processing (13) Manufacture of Soap, Oil and Allied Products (14) Agro-Based Industries (15) Production & Supply of Fertilizers (16) Ayurvedic & Medicine Practice

1	2	3	4	5	6	7
						(17) Mineral Based Industries
						(18) Smithy/Welding, Sheet Metal Work, including Plumbing
						(19) Radio Engineering
						(20) Watch & Clock Repairs
						(21) Electrical Appliances
						(22) Automobile Servicing & Repairs
						(23) Building Construction
						(24) Salesmanship, Trade and Business
						(25) Photography
						(26) Banking, Accountancy and Taxation
						(27) Co-operation
						(28) Clothing & Embroidery
						(29) Office Practice & Procedure
						(30) Pre-School & Primary Education
						(31) Coir-work
						(32) Handloom/Wool Weaving
						(33) Health Course
						(34) Manufacture of Paper & Allied Products

1	2	3	4	5	6	7
				District: *Chitradurga*		
3,461	1,085	—	—	4,546	(1) Hindi Teacher (2) Driver (3) Field Assistant (4) Typist (5) Storekeeper (6) Mechanic (7) Police Constable (8) Stenographer (9) Market Supervisors	(1) Agriculture (2) Horticulture (3) Tobacco Cultivation (4) Dairying (5) Poultry Farming (6) Forage Cultivation (7) Sheep Rearing and Wool Weaving (8) Mulberry Cultivation and Silk Weaving (9) Inland Fisheries (10) Oil Extraction & Allied Crafts (11) General Engineering (12) Textile Industry (13) Sugar Industry (14) Tailoring & Embroidery (15) Wood Work (16) Painting & Book Binding (17) Statistical Assistant (18) Pre-School & Primary Education (19) Radio Servicing & Repairs (20) Electrical Wiring and Repairs

1	2	3	4	5	6	7
				District : *Dakshina Kannada*		
–	11,153	1,996	—	13,149		(1) Building Construction and Technology (2) Electrical Wiring and Servicing of Electrical Appliances (3) Pesticides, Fertilizers and Medicides (4) Banking and Accountancy (5) Medical Courses (6) Pre-School & Primary Education (7) Printing and Book Binding (8) Dairying (9) Sericulture
				District : *Dharwar*		
–	21,005	3,960	—	24,965	(1) Typist (2) Stenographer (3) Technical Assistant (4) Nurse	(1) Building Construction (2) Electrical Wiring (3) Servicing of Electrical Appliances (4) Oil and Soap Technology (5) Clock & Watch Repair

1	2	3	4	5	6	7
						(6) Drawing, Painting and Commercial Art (7) Printing & Book Binding (8) Textile Technology (9) Dairying (10) Inland Fisheries (11) Co-operation (12) Pesticides, Fertilizers and Medicides (13) Sericulture (14) Health Courses (15) X-Ray Technician (16) Medical Record Technician (17) Multi-purpose Basic Health Worker (18) Laboratory Technician
					District : Gulbarga	
—	10,301	1,590	—	11,891	(1) Peon (2) Steno Typist (3) Police Constable (4) Nurse (5) Typist	(1) Vegetable-growing (2) Fruit-growing (3) Small Farm Management (4) Pesticides, Fertilizers and Medicides (5) Post-Harvest Technology

1	2	3	4	5	6	7
					(6) Stenographer	(6) Co-operation
					(7) Watchman	(7) Horticultural & Selvicultural Technology
					(8) Physical Education	(8) Scientific Agriculture
					(9) Drivers	(9) Building Construction Technology
					(10) S.D.C.	(10) Water Supply and Sanitary Construction Practices
					(11) Publicity Assistant	(11) Electrical (Domestic) Servicing
					(12) Tracer (Trained)	(12) Automobile Servicing and Maintenance
					(13) Skilled Attender	(13) Watch & Clock Servicing
					(14) Tally Checker	(14) Electrical Equipment Maintenance
					(15) Blaster	(15) Servicing Technology
					(16) Midwives	(16) Basic Workshop Technology
					(17) Junior Health Inspector	(17) Electrical Wiring and Servicing of Electrical Appliances
					(18) Draughtsman	(18) Oil & Soap Industries
					(19) Assistant Foreman	(19) Leather Technology
					(20) Electrical Foreman	(20) Photography
					(21) LSCO Driver	(21) Printing & Book Binding
					(22) Jr Unani Physician	(22) Tailoring & Embroidery
					(23) Conductor	(23) Textiles Asst.

1	2	3	4	4	6	7
					(24) Projectionists	(24) Mining Asst.
					(25) Fishermen	(25) Banking
					(26) Dumper Driver	(26) Materials Management Technology
					(27) Electrician Grade II	(27) Accountancy & Taxation
					(28) Compounder	(28) Accountancy & Costing
					(29) Instruments—Mechanic Electrician	(29) Accountancy & Auditing
					(30) Asst. Hindi Teacher	(30) Office Practice & Procedure
						(31) Advertising, Marketing and Salesmanship
						(32) Legal Assistant
						(33) Hotel & Hostel Management
						(34) Paramedical Courses
				District : Hassan		
1,339	4,798	1,004	—	7,141	(N A)	(1) Electrical Wiring and Servicing of Electrical Appliances
						(2) Banking
						(3) Co-operation
						(4) Accountancy & Auditing
						(5) Primary Education
						(6) Poultry Science

1	2	3	4	5	6	7
						(7) Agricultural Economics & Farm Management
				District : Kodagu		
65	2,022	604	2,814	5,505	(N A)	(N A)
				District : Mandya		
—	3,597	605	2,517	4,719	(1) Entomologist (2) Bacteriologist (3) Technologist (4) Draughtsman (5) Statistical Asst. (6) Machinist (7) Turner (8) Fitter (9) Mechanic (10) Electrician (11) Welder (Electrical) (12) Physicist (13) Blower (Foreman)	(1) Small Farm Management, including Agricultural Economics (2) Scientific Agriculture (3) Crop Plantation—Coconut, Cashew, Mango and Fruits (4) Pesticides, Fertilizers & Medicides (5) Post-Harvest Technology (6) Sugar Technology (7) Poultry Farming (8) Dairying (9) Sheep Rearing (10) Sericulture (11) Co-operation (12) Agro-Service Centres (13) Horticulture

1	2	3	4	5	6	7
					(14) Peons	(14) Agriculture
					(15) Winder	(15) Rice Bran Oil
					(16) Operators	(16) Textiles with Emphasis in Wool Weaving and Cotton Weaving
					(17) Librarian	(17) Forestry & Wood Products
					(18) Teacher (NEC)	(18) Furniture Making
					(19) Operator (Cinema)	(19) Chemical-Based Industrial Technology
						(20) Printing Technology
						(21) Photography
						(22) Clothing & Embroidery
						(23) Coir & Fibre Technology
						(24) Mechanized Bricks Manufacture
						(25) Footwear Technology & Leather Goods Manufacture
						(26) Accountancy & Taxation
						(27) Accountancy & Auditing
						(28) Motor Rewinding
						(29) Automobile Servicing
						(30) Servicing of Agricultural Machinery

1	2	3	5	5	6	7
						(31) Basic Workshop Technology Carpentry, Blacksmithy, Fitter (32) General Engineering—Sheet Metal (33) Boiler Operator & Attendant (34) Instrumentation & Attendant (35) Pre-School Education
					District : *Mysore*	
—	22,941	—	—	22,941	(1) Blaster (2) Stenographer (3) Mining foreman (4) Nurse	(1) Small Farm Management (2) Scientific Agriculture (3) Plantation Crops, Coconut, Tobacco, Grapes, etc. (4) Agricultural Economics (5) Pesticides, Elludicides, Medicines (6) Post-Harvest Technology (7) Rice-Gram Oil Technology (8) Textiles with Emphasism on Wool & Silk Weaving (9) Furniture Making (10) Saw Briquettes (11) Plywood & Decorative Laminates

1	2	3	4	5	6	7
						(12) Chemical-Based Industrial Technology
						(13) Photography
						(14) Tailoring & Embroidery
						(15) Manufacture of Utensils
						(16) Coir & Fibre Technology
						(17) Wood Carving & Inlay
						(18) Mechanized Bricks Manufacture
						(19) Accountancy & Taxation
						(20) Accountancy & Costing
						(21) Accountancy & Auditing
						(22) Materials Management Technology
						(23) Servicing of Domestic Electrical Appliances
						(24) Automobile Servicing
						(25) Basic Health Workers
						(26) Nutrition & Dietetics
						(27) Basic Workshop Technology
						(28) Opticians
						(29) Pre-School Education
						(30) Lab Technicians
						(31) Hostel & Hotel Management
						(32) Servicing of Agricultural Machinery

1	2	3	4	5	6	7
					District : North Kanara	
—	4,746	2,891	—	7,637	(1) Midwife	(1) Agriculture
					(2) Staff Nurse	(2) Horticulture
					(3) Welder	(3) Dairying
					(4) Shovel Operator	(4) Woodcraft
					(5) Dumper Driver	(5) Electrical Repairs & Servicing
					(6) Jeep Driver	(6) Storekeepers (Electricity Department)
					(7) Tractor Driver	(7) Fisheries
					(8) Civil Diploma	(8) Engineering Vocations
					(9) Police Constable	(9) Pottery & Tile Manufacturing
					(10) Stenographer	(10) Paper Manufacturing/Paper Craft
					(11) Cable Jointer	(11) Library Assistants Course
					(12) Boiler Attendant	(12) Nursery School Teachers
					(13) Typist	(13) Printing
					(14) Fitter	(14) Photography
					(15) Turner	(15) Watch & Clock Servicing
					(16) Compounder	(16) Soap & Detergent Manufacturing
					(17) Sanitary Inspector	(17) Tailoring & Dress-making
					(18) Steamer Operator	(18) Mining
					(19) Tracer	(19) Coil Work

1	2	3	4	5	6	7
					(20) Civil Engineer	(20) Banking
					(21) Telephone Operator	(21) Office Management & Secretarial Practice
					(22) Dry Earth Movers	(22) Stenography
					(23) Draughtsman	(23) Plumbing
					(24) Asst. Labour Officer	(24) Lab. Technician
					(25) Mech. Engineer	
					(26) Accountant	
					(27) Forester	
					(28) Stores Asst.	
					(29) Cleaner	
					(30) Supervisor	
					(31) Pharmacist	
					(32) First Division Clerk	
					(33) Peon	
					(34) Second Division Clerk	
					(35) Lecturer (Civil, Electrical & Mechanical)	
					(36) Auto Electrician	
					(37) Supervisor (Civil & Mechanical)	
				District : Raichur		
—	5,306	1,273	—	6,579	(1) Typist	(1) Clock & Watch Repair Technology
					(2) Grade II Trained Teacher	(2) Dairying

1	2	3	4	5	6	7
					(3) Midwives	(3) Poultry Science
					(4) Class IV	(4) Pesticides, Fertilizers and Medicides
					(5) Watchman	(5) Electrical Wiring & Servicing of Electrical Appliances
					(6) Cobbler	(6) Banking
					(7) Stenographers	(7) Tailoring & Embroidery
					(8) Peon	(8) Accountancy
					(9) Tractor Drivers	(9) Auditing & Accountancy
					(10) Jeep Drivers	(10) Building Construction Technology
					(11) Boring Machine Operator	(11) Multi-purpose Basic Health Worker
					(12) S. D. C.	
					(13) P. C.	
					(14) Bin Keeper	
					(15) Attendant	
				District : Shimoga		
—	8,449	3,096	—	11,545	(1) Stenographer	(1) Dairying
					(2) Staff Nurse	(2) Poultry
					(3) Automobile Fitter	(3) Agro-Based Industries
					(4) Dumper Operator	(4) Wood Industries
					(5) Microscopist	(5) General Engineering
					(6) Lab. Technician	(6) Horticulture

1	2	3	4	5	6	7
					(7) Blaster, Operative Welder, Helpers (8) Auto Electrician (9) Bee Fieldman (10) Security Watchman (11) Tools Keeper (12) Operator, Motor Trader (13) Operator Drilling	(7) Sheep Rearing (8) Goat Rearing (9) Agriculture (10) Manufacture & Maintenance of Agricultural Implements (11) Lime, Brick & Cement Works (12) Handloom (13) Auto Repairs (14) Welding (15) Pottery (16) Readymade Garments (17) Piggery (18) Inland Fisheries (19) Sandalwood Carving (20) Wild Sericulture (21) Horticulture (22) Primary Education (23) Pre-primary Education (24) Agro-Service Units
				District : Tumkur		
4,937	4,939	1,032	175	11,032	(NA)	(1) Dairying (2) Poultry Service (3) Sericulture (4) Fisheries

1	2	3	4	5	6	7
						(5) Sheep Farming & Wool Processing
						(6) Agriculture with Bias in favour of Dry Farming and use of Modern Inputs
						(7) Horticulture & Selviculture
						(8) Farm Animal Management Technology
						(9) Co-operation
						(10) Building Construction Technology
						(11) Electrical Wiring & Servicing of Electrical Appliances
						(12) Clock & Watch Repair Technology
						(13) Banking
						(14) Pre-School & Primary School Education
						(15) Multi-purpose Basic Health Worker
						(16) Tailoring & Embroidery
						(17) Printing, Book Binding & Composing
						(18) Office Practice & Procedure, including Typewriting

APPENDIX II

List of Vocational Courses Suggested by the Ministry of Education, Government of India

I. *Agricultural Sector*

1. Dairying
2. Poultry
3. Fisheries
4. Piggery
5. Growing of Vegetables
6. Cultivation of Medical Plants & Herbs
7. Forest Products
8. Fruits
9. Horticulture
10. Small Farm Management
11. Pesticides, Fertilizers & Medicides
12. Oil Seeds/Village Oil Industries
13. Making of Gur and Khandasari
14. Small Processing Units of Paddy, Wheat, Oats, Millets, Bread & Cakes
15. Re-Cycling of Animal Waste
16. Co-operatives
17. Farm Machines and Engineering
18. Rural Construction Technology
19. Sericulture
20. Sheep Rearing and Wool Production
21. Post-Harvest Technology

II. *Engineering and Technical Vocations*

22. Building Construction and Maintenance Practice
23. Water Supply and Sanitary Construction
24. Quantity Surveying and Specifications
25. Field Survey Practice
26. Electrical Domestic Appliances—Servicing
27. Airconditioning and Refrigeration Servicing
28. Cold Storage Maintenance Practice
29. Automobile Servicing and Maintenance
30. Fabrication Practice
31. General Mechanic
32. Foundry Practice
33. Boat-Building Practice
34. Domestic Electronic Equipment Servicing and Maintenance
35. Industrial Instrument Servicing and Maintenance
36. Laboratory Instrument Servicing and Maintenance
37. Hospital Instrument Servicing and Maintenance
38. Furniture Design and Manufacture
39. Metal-Coating and Painting
40. Electrical Equipment Maintenance
41. Television Equipment Maintenance and Repairs
42. Projections Equipment Maintenance and Repairs
43. Watch and Clock Servicing

III. Textile-Based Vocations

44. Handloom Weaving
45. Textile Bleaching, Dyeing and Finishing

IV. Chemical-Based Vocations

46. Plastic Moulding
47. Ceramic Pottery
48. Glass Working
49. Soap Manufacturing
50. Leather Goods Manufacture
51. Sports Goods Manufacture
52. Cosmetics
53. Paints, Varnishes, Pigments, Lacquerwork
54. Mining

V. Home Science-Based Vocations

55. Food Preservation
56. Banking
57. Meal Service & Supervision
58. Tie and Dye, Batik Printing and Block Printing
59. Hostel Management
60. Dietetics
61. Interior Decoration
62. Dress Designing and Making
63. Toy-Making
64. Designing, Dyeing and Printing
65. Canteen Management
66. Nutrition and Food Preparation
67. Textile Designs

VI. Miscellaneous Vocations

68. Library Assistants
69. Museology Assistants
70. Tourist Guides
71. Photography
72. Graphic Arts
73. Commercial Arts

VII. Teacher Education

74. Pre-Primary Teacher Training
75. Primary School Teacher Training
76. Physical Education Teacher Training

VIII. Diploma Course in Medical Laboratory Technology

77. Laboratory Assistants
78. ECG Technical Assistants
79. BCG Technical Assistants
80. Ambulance Attendant and Medical Emergency Technician
81. Operation Theatre Assistants
82. Orthopaedic Technicians
83. Psychiatric Assistants
84. Dressers
85. Dietetic Aids
86. Medical Record Technicians
87. Audiometry Technicians

88. Physiotherapy Technicians
89. Diploma in Opthalmic Technique
90. Occupational Therapy Technicians
91. Junior Medical Social Workers
92. Radiological Assistants
93. Diploma in Pharmacy
94. Dental Mechanic
95. Dental Hygienist
96. Multi-purpose Health Workers

IX. Commerce and Business Related Courses

97. Office Management and Secretarial Practice
98. Stenography
99. Insurance
100. Book-Keeping and Accountancy
101. Banking
102. Internal Trade
103. Data and Key Punching Process
104. Marketing and Salesmanship
105. Accounting and Auditing
106. Commercial Arts
107. Radio & Television Processes
108. Materials Management
109. Small Business Management
110. Taxation Procedure & Assistants
111. Labour Law Assistants
112. Legal Assistants

APPENDIX III

List of Colleges Offering Vocational Courses

1977-78

I. Bangalore District

(1) Sri Jagadguru Renukacharya Arts & Science College, Bangalore.

(2) Rural College, Kanakapura*

(3) NMKRV College for Women, Bangalore*

(4) MES College, Bangalore*

II. Dharwar District

(1) BASG Science Vidhyagiri College, Dharwar*

(2) Municipal Composite Junior College, Gadag

(3) Mahantaswamy Arts & Science College, Hansbhavi

(4) KE Board, Vidhyaranya KE School, Dharwad*

III. South Kanara District

(1) St. Alloysius College, Managalore*

(2) MGM College, Udipi*

(3) Viveka College, Kota*

(4) Vivekananda College, Puttur

1978-79

I. Bangalore District

(1) VV Puram College of Arts & Science and Commerce, Bangalore*

II. Belgaum District

(1) Govindaram Sakharia Science College

(2) RD Composite Junior College, Chickodi

(3) Beynon and Smith Composite Junior College, Belgaum

(4) Municipal Composite Junior College, Gokak

(5) LK Khot College of Commerce, Sankeswara

(6) Jyothi Junior College, Belgaum

(7) GA Composite Junior College, Belgaum

III. Hassan District

(1) Junior College, Holenarasipura

(2) Navodaya Junior College, Channarayapatna

(3) M. Krishna College, Hassan

(4) Junior College, Belur

IV. Mysore District

(1) Murimallappa Junior College, Mysore*

(2) JSS College of Arts and Commerce*, Chamarajanagar

V. Raichur District

(1) Tagore Memorial Junior College, Raichur*

---

*Colleges covered for in-depth interviews.

1977-78	1978-79
	(2) Government Junior College, Lingasugur
	(3) Government Junior College, Gangavathi
	(4) Government Junior College, Manvi
	(5) Government Junior College, Sindhanur
	VI. Tumkur District
	(1) Government Junior College, Pavagada
	(2) Government Arts College, Tumkur
	(3) Government Junior College, Tumkur
	(4) First Grade College, Sira
	(5) Kalpataru College, Tiptur
	VII. North Kanara District
	(1) SDM College of Arts & Science, Honnavar
	(2) MM College of Arts & Science, Sirsi
	(3) Shivaji Vidyalaya, Haliyal
	(4) MGC College, Siddapur
	(5) Mahasathi Junior College, Ulga
	(6) Bangurunagara Composite Junior College, Dandeli

APPENDIX IV

Student Enrolment in Vocational Education Courses 1977.78

District	College	Courses	Students Enroled			Staff Employed		
			Boys	Girls	Full-time	Part-time	Assts.	Helpers
1	2	3	4	5	6	7	8	9
Bangalore	(1) Sri Jagadguru Renukacharya Arts and Science College Bangalore	(1) Building Construction Technology	25	—	—	8	2 Mechanic (1) PT	Helper-1 (PT)
		(2) Electrical Wiring and Servicing of Electrical Appliances	25	—	—	9		
		(3) Accountancy & Auditing	25	—				
		(4) Accountancy & Costing	25	—				
	(2) Rural College*	(1) Building Construction Technology	21	—	—	1		
		(2) Servicing Technology	19	—	—	5	Clerk-cum-Typist-1 (FT)	Peon-1 (FT)
		(3) Photography	11	—	1	3		
		(4) Sericulture	24	1	—	4		

1	2	3	4	5	6	7	8	9
	(3) NMKRV College for Women,* Jayanagar Bangalore	(1) Clock and Watch Repair Technology	—	10	—	5	SDC-1 (FT)	Helper-1 (FT)
		(2) Photography	—	11	—	4	Typist-1 (FT)	
		(3) Physio-Therapy & Occupational Therapy Technician	—	13	1	4		
		(4) Psychiatric Assistant	—	6	—	4		
	(4) MES College,* Bangalore	(1) Multi-purpose Basic Health Worker (Male)	11	—	—	7		
		(2) Banking	14	11	—	4	Clerk-cum-Typist (PT)	Peon (PT) 1
		(3) Materials Management Technology	19	6	—	5		
		(4) Laboratory Technician	10	9	—	5		
Dharwar	(1) BASG	(1) Building Construction Technology	25	—	1	1	1	Helper-1 (PT)
	Science Vidyagiri College, Dharwar	(2) Electrical Wiring & Servicing of Electrical Appliances	25	—	1	1	—	Helper-1 (FT)

1	2	3	4	5	6	7	8	9
		(3) Materials Management Technology	25	—	—	1	1	Helper-1 (PT)
		(4) Accountancy and Auditing	21	3		1	—	Helper-1
	(2) Municipal Composite Junior College, Gadag, Dharwar District	(1) Building Construction Technology	24	—	—	1	1 (PT)	Peon-1
		(2) Electrical Wiring and Servicing of Electrical Appliances	25	—	—	1	1 (PT)	
		(3) Medical Record Technician	24	—	1	1	1	Helper-1
		(4) Multi-purpose Basic Health Worker (Male)	23	—	—	1	1	Helper-1
	(3) Mahantaswamy Arts & Science College, Hannsbhavi, Dharwar District	(1) Electrical Wiring & Servicing of Electrical Appliances	25	—	—	1	1	Helper-1
		(2) Clock and Watch Repair Technology	24	—	—	1	1	Helper-1
		(3) Sericulture	18	—	—	1	1	Helper-1
		(4) Co-operation	18	—	—	1	1 (Storekeeper)	
	(4) KE Board, Vidyaranya Composite Junior College, Dharwar	(1) Dairying	22	—	—	5		
		(2) Servicing Technology	24	—	—	10	Clerk-cum-Typist 1-(FT)	Helper-1

1	2	3	4	5	6	7	8	9
		(3) Electrical Wiring & Servicing of Electrical Appliances	22	—				
		(4) Pesticides, Fertilizers and Medicides	23					
	(5) Basel Mission Composite Junior College,* Dharwar	(1) Banking	23	2	—	4	Clerk-cum-Typist-3	Peon-1 (FT)
		(2) Materials Management Technology	23	2	—	5		
South Kanara	(1) St. Aloysius College, Mangalore	(1) Building Construction Technology	24	—	—	7		
		(2) Electrical Wiring and Servicing of Electrical Appliances	25	—	1	5	Clerk-cum-Typist 1 (FT)	Helper-1 (FT)
		(3) Fisheries	24	—	2	8	—	
		(4) Pesticides, Fertilizers and Weedicides	22	—	1	3	—	—
	(2) MGM College,* Udipi	(1) Building Construction Technology	22	—	—	21	—	—
		(2) Electrical Wiring & Servicing of Electrical Appliances	25	—	—	11	—	—

	(3) Laboratory	21	3	1	—	—	—
	(4) Physio-Therapy and Occupational Therapy Technician	4	—	1	—	—	—
	(5) Medical Record Technician	6	—	1	—	—	—
	(6) Psychiatric Asst.	4	—	1	—	(NA)	(NNA)
	(7) X-Ray Technician	4	—	1	—		
	(8) Optician and Refractionist	4	—	1	—		
(3) Viveka College,* Kota (South Kanara)	(1) Co-operation	11	11	—	—		
	(2) Pesticides, Fertilizers & Weedicides	17	—	1	1	Accountant-cum-Typist-1 (FT)	Helper-1 (FT)
	(3) Banking	12	12	1	1		
	(4) Accountancy & Auditing	15	8	1	1		
(4) Vivekananda College, Puttur, South Kanara	(1) Co-operation	12	5	—	4	Library-cum-Store-keeper-1 (PT)	
	(2) Accountancy & Auditing	21					

Note : Colleges with asteriks are those which were covered by personal visits.

APPENDIX V

Statement of Expenditure on Vocational Education During 1977-78 and 1978-79

Items of Expenditure	*Amount of Expenditure (in rupees)*	
	1977-78	1978-79
Salaries and Other Charges	272,515	278,800
	(0.0022)	(0.0195)
Survey Charges	29,750	85,000
	(0.00024)	(0 00595)
Grant-in-Aid		
(*i*) Recurring	655,700	1,400,000
	(0.0548)	(0.0981)
(*ii*) Non-Recurring	518,500	686,250
	(0.0433)	(0.0481)
Examination Charges	1,476,465	72,250
	(0.12)	(0.00506)
Total	2,522,300	2,952,930
	(1.76)	(2.47)

Note : Percentages shown in parenthesis are computed on the basis of the total expenditure on education in the State.

Source : Department of Vocational Education, Government of Karnataka.

APPENDIX VI

Student Enrollment and Employment of Staff in Different Vocational Courses Groups

Vocational Course Group	*Student Enrollment*						*Employment of Staff*							
	1977-78			1978-79			1977-78				1978-79			
	Boys	*Girls*	*Total*	*Boys*	*Girls*	*Total*	*Full-time*	*Part-time*	*Assts.*	*Helpers*	*Full-time*	*Part-time*	*Assts.*	*Helpers*
01 Agriculture	168	17	185	155	8	163	4	27	3	1	7	74	12	4
02 Engineering	401	21	422	412	—	412	4	95	14	10	10	134	23	3
03 Health	111	31	142	72	13	85	8	22	1	1	4	15	2	1
04 Business & Trade	202	44	246	179	37	216	3	22	5	3	15	98	18	7
All	882	113	995	818	58	876	19	166	23	15	36	321	55	15

S.C.E.R.T., West Bengal
Library
Calcutta

371.42
THI

Printed by : SANDEEP PROCESS.